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ABSTRACT

This assessment of New Jersey's Mercer County Community College's (MCCC's) remedial program provides a program overview, results of a two-year follow-up of fall 1986 remedial students, and comparative data from previous years. The program overview examines policies and procedures concerning placement criteria, exit standards, program acceptance, academic standards, longitudinal tracking, and students with limited English proficiency. In addition, this section presents information on courses, facilities, and staffing; as well as MCCC's reading and writing programs, and computation and algebra courses. The next section focuses on the students enrolled in remedial courses in fall 1986, including data on the number of full- and part-time students tested, identified for remediation, and enrolled in remedial courses. This section also offers information on the students' completion of remedial courses; performance in college-level courses; and pre- and post-testing results. Next, data on student outcomes are compared for fall 1983, 1984, and 1985 groups. Finally, major findings and trends are summarized, indicating that an average of 79% of the enrolled students completed remedial courses in reading, 80% in writing, 71% in computation, and 71% in algebra; and that remedial students had higher return rates, but lower grade point averages than students who entered MCCC with college-level skills. (AJL)

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Mercer County Community College

REMEDIAL PROGRAM ASSESSMENT

AUGUST 1988

TWO YEAR FOLLOW-UP

OF THE

FALL 1986 COHORT

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JC 880 462

MERCER COUNTY COMMUNITY COLLEGE
REMEDIAL PROGRAM ASSESSMENT
FALL 1986 COHORT
AUGUST 1988

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MERCER COUNTY COMMUNITY COLLEGE
REMEDIAL PROGRAM SELF-ASSESSMENT (JULY, 1988)

PROGRAM OVERVIEW: HISTORY, RECENT DEVELOPMENTS, AND PLANS

Historical Background

In accordance with its charter in 1966 as an open-door institution, Mercer County Community College has maintained an unhesitating commitment to serve its underprepared students. This pledge has been reaffirmed on numerous occasions by the Board of Trustees which has resolved to:

* provide students with the developmental programs, services, and assistance that are required for successful achievement (Mission Statement, 1966)

* assist students with the development of basic academic skills in preparation for successful entry into career and transfer programs (College-wide Goals, 1976)

* provide general education experiences to enable students to read effectively, to think critically, to communicate ideas clearly, to solve mathematical problems correctly, and to use these skills competently in everyday life (excerpted from College-wide Goals, 1983)

From 1970 to 1978, the Academic Skills Department was responsible for all basic skills instruction and, until 1977, the Career Guidance and Placement (CGP) instrument was used to evaluate the proficiencies of entering students. Those who did not meet the established competency standards in reading, writing, or computation were required to complete a developmental course in the respective skill area. In a succession of organizational and developmental changes commencing in 1979, Academic Skills emerged as a major academic unit of the college. Talented new staff were recruited; the CGP was replaced by the New Jersey College Basic Skills Placement Test (NJCBSPT); bilevel courses in reading and writing were developed; and a multilevel program in English as a Second Language (ESL) was introduced. The academic skills unit became part of the Instructional Resources Division in order to integrate all developmental services, including basic skills instruction, tutoring, academic testing, and counselling services. This consolidation was followed by the introduction of a laboratory component into all basic skills courses and the relocation of the Writing Center to Academic Skills.

Placement standards and exit requirements in reading and writing were raised significantly in 1980 and again in 1981. Elevated placement standards in computation were introduced in 1982, and in 1983 a basic algebra course (MS 110) was added to the program. This remedial-level offering replaced a college algebra course (MA 109) that had been part of Mercer's curriculum for many years. In conjunction with this addition of developmental algebra, the Mathematics Learning Center was moved to Academic Skills to ensure a full array of support services in mathematics.

During the period 1981-1983, major gains in both testing rates and enrollment of remedial students were recorded. In 1984, the college's on-line registration system was modified to enforce testing and placement requirements. This enabled Mercer to sustain its high testing rate (averaging 99% FT and 94% PT over the last four years) and to improve the enrollment of students in required remedial courses. For each of the last several cohorts, more than 95% of the full time students and nearly 75% of the part-timers needing remediation were enrolled in their required courses in reading, writing, and computation.

The completion in 1982 of a comprehensive longitudinal tracking system enabled the college to improve its understanding of the impact of placement testing and remedial instruction. This computerized system, which is now kept current by on-line updating, provides placement information for faculty advisors. It also generates data for both program evaluation and institutional research purposes. In 1983, the longitudinal tracking model was emulated in order to follow students enrolled in the Bilingual and English as a Second Language programs.

The two-year follow-ups generated through the tracking system have helped to strengthen the college's courses and curriculum requirements. Academic divisions periodically review the skills proficiencies required for success in their introductory level courses, and a carefully selected list of course options available to remedial students is published for use by academic advisors. Students who do not meet the entry standards of their preferred degree programs at the time of acceptance into the college are granted provisional status pending removal of academic deficiencies. This has fostered a closer linkage between remedial students and the academic divisions in which they intend to study.

The facilities and resources of the Academic Skills program continue to be improved. A PDP 11/40 minicomputer with 48 terminals was dedicated to the program in 1983, and customized software was developed later that year for use by students in Basic Mathematics (MS 100). By 1987, microcomputer-based software had replaced the minicomputer as the principal supplementary resource in mathematics. A major construction project, finished in 1984, added 2,820 square feet of laboratory and classroom space to existing facilities. A second construction project now nearing completion will provide needed laboratories and offices for the program. The new space will include a state-of-the-art computer laboratory, purchased with vocational education funds, for English as a Second Language students.

Two full-time counselors were permanently assigned to Academic Skills and additional funds were allocated to support tutoring services during the last decade. In 1985, a full-time tutor coordinator/laboratory instructor was appointed to serve students at the James Kerney Campus (JKC). Concurrently, the LINK program at JKC, which extends remedial and college-level course opportunities to high school students, was expanded. And project FUTURE, started at JKC in fall 1986, concentrates on improving the basic skills of students whose severe deficiencies indicate they are not ready for the existing Academic Skills program.

Several strategies affecting basic skills students were instituted in recent years as part of a college-wide plan to improve institutional support

for minority and underprepared students. The tutoring program, for example, became a major focus for developmental efforts. Records were computerized in September 1985 and a variety of new tutoring models were tried during the subsequent semesters (including a drop-in center, group-study sessions, and a peer counselling component) as part of expanded services for high risk students in basic or entry-level courses. A grant-funded project to produce a comprehensive training package for all tutors is now in its final phase.

Posttesting became routine in all courses by the middle of the decade, using locally-developed instruments in reading and writing and the NJCBSPT in mathematics. And a workbook developed by the writing coordinator for students in developmental composition evolved over time into a book that was published in January 1988 by Harcourt Brace.

The college's Basic Education Master Plan, initially published in 1984, has been incorporated into the fabric of institutional planning to ensure close attention to Mercer's mission in basic skills. Most of the objectives for 1984-1987 were accomplished. These included development of a computerized placement letter to notify students of the results of the NJCBSPT; pilot testing of a precalculus placement instrument; development of an integrated course in computation and algebra for selected students; and various initiatives to strengthen tutoring services.

Collaborative Efforts

The Basic Education Master Plan increasingly stresses collaboration with various constituencies. In keeping with this thrust, several non-credit Academic Skills offerings were introduced during the past three years in cooperation with the Division of Continuing Education. One course, intended primarily for adults contemplating return to school, focused on a review of the fundamentals of mathematics. The Academic Skills Academy, in contrast, was designed as a summer opportunity for high school students seeking to improve their verbal or mathematics skills. In spring, 1987, two customized basic skills courses (one in writing and one in mathematics) were conducted for technical personnel at Princeton Plasma Physics Laboratories. These courses were replicated at several state offices in 1987-88, and in the summer of 1988, a non-credit ESL course was offered with encouraging success. The resources of the department also played a vital role in the basic skills component of a summer 1987 program for twenty youths from the Skillman Corrections Center. Many of these initiatives will continue as the Academic Skills faculty extend their talents to new populations.

Collaborative efforts between faculty from English and Academic Skills have demonstrated that word processing can be used effectively as a tool to teach writing at all levels. Several sections each of developmental writing and English Composition incorporated this technology into the respective course routines during the period 1985-1987. Under a course development project funded by the college, two faculty members recently developed a word processing tutorial and pointed exercises for use in the word processing sections of these writing courses. In fall 1988, the use of word processing in Basic Composition will be expanded.

Collaboration also occurs between instructors of remedial and college-level mathematics. Last year, exit requirements in Basic Algebra (MS 110)

were raised as part of a response to the observed poorer performance of remediated students who enrolled in college-level mathematics courses. In 1987, the the developmental algebra coordinator selected a textbook which is the companion to the text used by faculty teaching the first college-level course. By fall 1988, the entire item bank of unit tests used in both developmental and college algebra will be revised.

Linkages with local school districts are becoming stronger. Mercer's reading coordinator has delivered several workshops for teachers in the Trenton system, and the chairperson recently conducted a district-wide staff development program for Hamilton Township schools. During the 1987-88 academic year, more than 4,000 copies of the Futures brochure were distributed to eighth grade students in area schools; additional copies will be distributed in 1988-89. Each year, the college hosts a dinner for high school mathematics and science teachers. In spring 1988, this well-attended event featured a presentation by Dr. Charles Pine who discussed his algebra project. In spring 1988, Mercer hosted a similar dinner for high school English teachers in conjunction with release of the high school literary magazine whose publication is sponsored by the college.

Recent Developments

The Basic Education Master Plan was rewritten for the period 1987-1990. Major thrusts in the new plan will include: developing closer linkages with area high schools, continuing special programs exclusively for high school students, and trying new strategies to improve student retention and success. Further efforts will be made to improve the passing rates in remedial and college-level mathematics. Finally, the Master Plan stresses the importance of the tutoring component and the need to adapt appropriate computer technology for basic skills instruction.

In the fall of 1987, Mercer's reading and writing assessment instruments were reviewed by an external consultant in accordance with guidelines published by the New Jersey Basic Skills Council. The college was not successful in securing approval for use of these instruments to meet the exit test score reporting requirement of the Basic Skills Council, but the instruments have been revised and the study will be repeated in fall 1988.

New optical scanning equipment, acquired last year with college funds, permits students in the reading laboratory to score their own vocabulary tests; mathematics students use similar equipment to evaluate their preparedness for unit tests. Microcomputer software linked to the scanners provides faculty with summary records of student performance and progress. During the past academic year, scoring of the NJCBSPT was placed "on-line" to give students and counselors immediate placement testing results.

Plans

The growing population of non-native speakers presents new challenges that will be met with projects in 1988-89. The new ESL laboratory, equipped with IBM-compatible computers purchased last year with vocational education funds, will be fully integrated into the laboratory component of the ESL courses by late fall. And by early spring, the college intends to implement

on-line grading and reporting of ESL placement testing results. A new grant will support development of instructional modules for the ESL reading and writing courses.

Collaboration efforts will continue. Additional copies of the Futures brochure will be provided to eighth graders in those districts that did not participate in last year's distribution. Other plans include offering Academic Skills courses to area employers and building upon the recent staff development services provided by Academic Skills staff members.

Improving the performance of students in entry-level mathematics courses remains a major focus for next year. Mathematics placement will receive special scrutiny. For example, the instrument used for placement above remedial algebra will be revised and scoring will be put on-line by late fall. If funding proposals are successful, computers are expected to play an increasingly important role in both developmental and college-level mathematics courses. Finally, a new tutor support program will be operational by September to assist high risk students in Intermediate Algebra I (MA 101).

The college's exit tests in reading and writing are now being revised in light of the critique of the Basic Skills Council; plans are now in place to repeat the NJCBSPT equating study for submission to the Council by early spring. In a separate study, the college will be anayzing results of an experimental linkage between Introductory Psychology (PY 101) and the higher level reading course, College Reading (ES 210).

RESEARCH FINDINGS

A variety of research projects involving developmental students were completed during the past three years. Principal results from each were discussed in detail last year. They are summarize again here.

Local Essay Readings

This first study demonstrated that local essay scorings by faculty continue to be effective in determining the writing placements of students whose NJCBSPT Sentence Sense scores are close to the cutoff. Analysis of essay data for the period March 1985 through December 1985 verified remarkable consistency between the local essay scores and the subsequent results of statewide readings conducted at the Educational Testing Service under the auspices of the Basic Skills Council. Some students placed higher and some placed lower than would have been obtained if ETS scores had been instantly available. In the aggregate, however, there was 94% agreement. The correlation was high and the scatterplot showed similar scoring patterns. For 375 papers, or 65% of all cases, the two reading teams obtained scores that were identical or discrepant by only one point.

English Composition Enrollment and Success Rates

This analysis investigated the impact over time of rigorous English placement standards on the enrollment and passing rates of English Composition I (EG 101). When the placement program was introduced in 1979-1980, the EG 101 enrollment dipped. The enrollment recovered in the following year, however, and it continued to mirror the institution-wide pattern of growth through 1982-1983. The decline since that time paralleled the college's overall enrollment decrease. This finding demonstrated that student enrollment in English Composition does not necessarily suffer when rigorous placement standards are introduced. However, the fundamental purpose of the placement program is to improve student preparation and success. The effect over time of the writing placement program also was explored in terms of the passing rate in English Composition. Over a seven-year period, annual passing rates in EG 101 improved dramatically, paralleling the college-wide improvement in testing rate and enrollment of students needing writing remediation. From 1982 through 1986, the passing rate in EG 101 remained stable at approximately 78%, representing a 26% improvement over the 62% passing rate of 1978-1979.

The high passing rate in English Composition I continues (77% passed in 1987-88). Although it would be difficult to demonstrate direct causality from these data, the relationship between serious application of placement standards and the improved student success in college-level English is indisputable.

Gender and Age Disparities in Placement and Performance

The third and most elaborate study explored the relationship of two variables (gender and age) in the academic placement and longitudinal performance of the 1983 cohort. Overall, the placement results conformed to expectations: females outperformed males in verbal skills, while males showed a decided advantage in mathematics. No aged-based disparity in verbal skills placement was evident, but younger students outperformed older students in mathematics. These findings support the socialization model to explain gender disparities in academic preparation and the "lack of practice" explanation for the appearance of mathematics deficiencies among returning adults.

There were no significant gender differences in the retention of remediated students, but younger students returned at a significantly higher rate than their older counterparts. Where disparities appeared in academic performance data (grade point average, credits accumulated, quality points earned), the differences uniformly favored females and younger students. The passing rates in college English showed no significant gender or age differentials, and the success in college mathematics revealed no significant age-based disparities. However, algebra-remediated females outperformed remediated males by a significant margin in college mathematics. The finding that older students cannot compete with traditional-aged students on conventional measures of academic performance is consistent with the literature. However, the discovery of a higher college mathematics passing rate among remediated females has significant implications. As a group, females appear to be more able to overcome their deficiencies and be successful if they are provided with a systematic

program of mathematics assistance. This finding suggests that adult males identified as needing mathematics remediation are at a greater risk of failure than previously believed.

Enrollment in College Courses by Remedial Students

Students who are deficient in all skill areas are required to enroll in a full program of remediation. To motivate them and establish their affiliation with an academic division, these students are encouraged to elect one of five discipline-based courses which do not carry college degree credit. For other students (with partial deficiencies), the college maintains a list of courses available to them while they are completing their remedial requirements. The list defines the minimum placement in reading, writing, and mathematics for every entry-level course in the catalog. The central purpose of the list is to ensure that students do not attempt courses for which they lack the prerequisite basic skills.

An examination of student enrollment patterns in fall 1986 confirmed that students generally follow the guidelines: relatively few students were enrolled in college-level courses prior to completing the specified skills prerequisites. Faculty and counselors seem to use wisely the published list of college courses in conducting advisement for remedial students. The creation of this computer analysis will permit the college to review the enrollment patterns of remedial students in future semesters. Moreover, the findings from each examination can be paired with follow-up data about students' performance in college courses to make informed decisions about the academic skills needed for success in any particular course.

COMPARATIVE DATA

The college's record of testing, placement, and cohort enrollment is summarized in Table 1 (see next page). The full-time testing rate has remained stable at almost 99% for five consecutive years, while the part-time rate has improved dramatically over the past five years -- from 66% in fall 1980 to more than 90% since fall 1982. The improvement in the testing of part-time students is attributable in part to the establishment of computerized controls in the fall 1984 semester.

Unfortunately, there has not been any discernible improvement in the proficiencies of entering students during the past five years. The fall 1987 NJCBSPT placement results in the verbal areas show only a small changes, and among part-time students the percentage needing writing remediation reached 50% for the first time. However, the most recent results do show that the five year slide in students' computation and algebra proficiencies appears to have been arrested.

Table 2 (see subsequent pages), which shows the course enrollment histories of the various basic skills courses at Mercer County Community College, demonstrates the dramatic impact of the placement testing program and associated policies. Major growth occurred throughout the period 1977-1982, coinciding with the implementation of stringent testing and placement standards. Since 1982, basic skills enrollment has been relatively stable, and no significant increases are projected for the balance of the decade. College-wide enrollment is expected to decline, testing rates have reached a ceiling, and enrollment of full-time students needing remediation is close to the maximum attainable. If any enrollment changes do occur, they are likely to be in Basic Algebra (MS 110), the course which replaced Elementary Algebra (MA 109) in the fall 1984 semester. It is difficult to anticipate the effect of two counterbalancing factors which will influence its enrollment: the MS 110 prerequisite to college mathematics is being enforced more stringently, and a new course (Business Mathematics) which does not carry an MS 110 prerequisite will be operational in fall 1988.

TABLE 1
TESTING, PLACEMENT, AND ENROLLMENT
MERCER COUNTY COMMUNITY COLLEGE

TESTING RATE, ENTERING FALL COHORTS
(expressed as a percentage of those required to be tested)

	F79	F80	F81	F82	F83	F84	F85	F86	F87
Full Time	84	95	90	99	99	99	98	99	99
Part Time	42	66	86	94	94	97	90	92	93

STUDENTS REQUIRING REMEDIATION, FALL COHORTS
(expressed as a percentage of students tested)

		F79	F80	F81	F82	F83	F84	F85	F86	F87
Reading	FT	42	31	42	45	43	45	47	43	44
	PT	46	31	31	45	39	45	45	42	46
Writing	FT	57	38	33	38	43	38	44	45	45
	PT	57	37	25	39	42	38	42	45	50
Comput	FT	51	34	29	37	42	46	47	51	48
	PT	66	39	25	42	49	52	57	58	56
Algebra	FT	--	53	50	60	57	60	65	64	63
	PT	--	72	50	79	73	74	81	80	78

PLACEMENT EFFECTIVENESS, FALL COHORTS
(expressed as a percentage of students needing remediation)

		F79	F80	F81	F82	F83	F84	F85	F86	F87
Reading	FT	57	77	68	76	93	98	95	91	91
	PT	45	57	50	46	48	72	72	78	76
Writing	FT	56	77	72	79	86	96	95	92	92
	PT	63	62	52	48	57	72	68	76	77
Comput	FT	46	75	81	80	89	95	95	90	91
	PT	64	56	62	53	52	75	73	78	79
Algebra	FT	--	--	24	25	64	77	66	73	71
	PT	--	--	22	20	38	53	47	56	52

TABLE 2
COURSE ENROLLMENT HISTORY

	1977 - 1978				1978 - 1979				1979 - 1980			
	Sum	Fal	Spr	Tot	Sum	Fal	Spr	Tot	Sum	Fal	Spr	Tot
Reading												
Lev 1: ES 110	29	258	113	400	29	273	116	418	44	350	139	533
Lev 2: ES 210	14	166	91	271	18	161	91	270	19	162	99	280
Total Reading	43	424	204	671	47	434	207	688	63	512	238	813
Writing												
Lev 1: ES 090	-	-	-	-	-	-	-	-	-	-	-	-
Lev 2: ES 100	56	327	157	542	47	326	211	584	63	487	213	763
Total Writing	56	327	157	542	47	326	211	584	63	487	213	763
Computation												
MS 100	33	269	173	475	29	252	274	555	59	404	257	720
Algebra												
MA 109	77	592	457	1126	92	584	476	1152	96	621	553	1270
MS 110	-	-	-	-	-	-	-	-	-	-	-	-
MS 120	-	-	-	-	-	-	-	-	-	-	-	-
Total Algebra	77	592	457	1126	92	586	476	1152	96	621	553	1270

	1980 - 1981				1981 - 1982				1982 - 1983			
	Sum	Fal	Spr	Tot	Sum	Fal	Spr	Tot	Sum	Fal	Spr	Tot
Reading												
Lev 1: ES 110	32	461	230	723	64	472	276	812	58	354	153	565
Lev 2: ES 210	21	166	85	272	14	216	100	330	19	420	259	609
Total Reading	53	627	315	995	78	688	376	1142	77	774	412	1263
Writing												
Lev 1: ES 090	-	-	-	-	-	106	80	186	17	110	63	190
Lev 2: ES 100	62	581	260	903	81	511	277	869	60	604	265	929
Total Writing	62	581	260	930	81	617	357	1055	77	714	328	1119
Computation												
MS 100	64	553	253	870	46	597	328	971	60	734	354	1148
Algebra												
MA 109	150	847	724	1721	123	786	776	1685	149	848	868	1865
MS 110	-	-	-	-	-	-	-	-	-	-	-	-
MS 120	-	-	-	-	-	-	-	-	-	-	-	-
Total Algebra	150	847	724	1721	123	786	776	1685	149	848	868	1865

(Table 2 continued on next page)

TABLE 2 (continued)
COURSE ENROLLMENT HISTORY

	1983 - 1984				1984 - 1985				1985 - 1986			
	Sum	Fal	Spr	Tot	Sum	Fal	Spr	Tot	Sum	Fal	Spr	Tot
Reading												
Lev 1: ES 110	37	301	158	496	28	303	164	495	40	327	151	518
Lev 2: ES 210	52	503	237	792	48	475	281	804	92	518	296	906
Total Reading	89	804	395	1288	76	778	445	1299	132	845	447	1424
Writing												
Lev 1: ES 090	17	114	41	172	14	124	59	197	13	139	85	237
Lev 2: ES 100	92	633	277	1002	59	516	302	877	89	614	282	985
Total Writing	109	747	318	1174	73	640	361	1074	102	753	367	1222
Computation												
MS 100	94	831	383	1308	119	796	450	1365	137	887	452	1476
Algebra												
MA 109	173	241	145	559	-	-	-	-	-	-	-	-
MS 110	-	592	522	1114	161	777	590	1528	172	764	561	1497
MS 120	-	-	-	-	-	-	-	-	-	30	-	30
Total Algebra	173	833	667	1673	161	777	590	1528	172	794	561	1527

	1986 - 1987				1987 - 1988				1988 - 1989			
	Sum	Fal	Spr	Tot	Sum	Fal	Spr	Tot	Sum	Fal	Spr	Tot
Reading												
Lev 1: ES 110	41	219	117	377	49	284	111	444				
Lev 2: ES 210	74	393	248	715	63	419	230	712				
Total Reading	115	612	365	1092	112	703	341	1156				
Writing												
Lev 1: ES 090	20	117	64	201	23	127	61	211				
Lev 2: ES 100	114	573	269	956	132	659	320	1111				
Total Writing	134	690	333	1157	155	786	381	1322				
Computation												
MS 100	165	828	364	1357	174	856	388	1418				
Algebra												
MS 110	166	725	538	1429	151	618	565	1334				
MS 120	-	56	20	76	-	51	13	64				
Total Algebra	166	781	558	1505	151	669	578	1398				

Table 3 shows the completion rates for courses in Academic Skills during the past seven academic years. Over the last three years, the performance of students in the upper level courses in writing (ES 100) and reading (ES 210) has remained stable at approximately 67% and 71%, respectively. The passing rate in the computation course (MS 100) during the past virtually matched the tally for the 1986-87 academic year. Although the current level in MS 100 is lower than desired, the 61-62% rate represents a significant recovery relative to the record low 53% recorded two years ago. Passing rates in Basic Algebra (MS 110) have fluctuated in the 62-66% range since the course was instituted in the fall of 1983. Basic Mathematics and Algebra (MS 120), which integrates computation and algebra topics for selected students, achieved an 84% passing rate last year, the highest in its three-year history.

TABLE 3
COURSE COMPLETION RATES

		Academic Year Passing Rates (%)						
Course	Title	81-82	82-83	83-84	84-85	85-86	86-87	87-88
ES 090	Sentence Composition	46	63	61	65	54	59	62
ES 100	Basic Composition	63	66	67	64	66	68	67
ES 110	Basic Reading	49	55	51	64	66	60	62
ES 210	Coll Reading Improv	63	60	68	68	70	72	71
MS 100	Basic Mathematics	61	57	61	65	53	62	61
MS 110	Basic Algebra	--	--	66	62	62	66	62
MS 120	Basic Math and Algebra	--	--	--	--	80	66	84
MA 109	Elementary Algebra	57	61	66	--	--	--	--

POLICIES AND PROCEDURES

Placement Criteria

Placement criteria and exit standards are reviewed annually to ensure adherence to sound academic practice. This review considers course objectives, course completion rates, and all of the data generated by the most recent longitudinal follow-up of remedial students. As shown in Table 4, no significant changes have been made in NJCBSPT cutoff scores since 1983 when mathematics placement standards were raised. However, adjustments have been made to balance the distribution of students betwen the two writing courses in order to improve student success and provide increased instructional focus on the weakest writers.

TABLE 4
PLACEMENT CRITERIA

	1981	1982	1983	1984-1988
Reading				
ES 110 -Level 1	RC ≤ 156	RC ≤ 145	RC ≤ 145	RC ≤ 145
ES 210 -Level 2	156<RC<163	145<RC<163	145<RC<162	145<RC<162
Writing				
ES 090 -Level 1	CE ≤ 140	SS ≤ 140	SS ≤ 140	SS ≤ 145
ES 100 -Level 2	140<CE<159	140<SS<165	140<SS<165	145<SS<165
		Essay < 8*	Essay < 8*	Essay < 8*
Computation				
MS 100 -one level	CO < 157	CO < 160	CO < 166	CO < 165
Algebra				
MS 110 -one level	EA < 159	EA < 163	EA < 167	EA < 167
Comput/Alg				
MS 120 -one level	--	--	--	CO < 165 156<EA<166

*All numbers represent NJCBSPT standard scores. Writing placement determined by essay score if NJCBSPT SS score is in range 156-164.

The college's current placement practices, which are consistent with the sector-wide minimums established in 1983, continue to emphasize the relevance of information beyond NJCBSPT scores. Student performance on the NJCBSPT essay is used in conjunction with the Sentence Sense score to ascertain writing placement, and the Degrees of Reading Power (DRP) instrument is used to verify or adjust reading placement for students who score in the range 158-162 on the Reading Comprehension section of the NJCBSPT. The DRP is also used to evaluate the reading skills of those students with adequate NJCBSPT scores who are referred by instructors of college-level courses. The exit test in Basic Mathematics (an alternate form of the NJCBSPT computation subtest) is used to reevaluate the computation skills of students with high algebra scores and lower computation scores. While these reevaluation opportunities seldom result in placement changes, they do help to confirm the validity of initial determinations and to reinforce for students that the identified deficiencies are real.

Exit Standards

In order to receive a passing grade and be permitted to proceed to the next remedial level or college-level course, basic skills students must meet course requirements and demonstrate proficiency on the appropriate exit examinations. Table 5 summarizes current exit standards for each course. Although faculty may exercise discretion in assigning course grades to those

whose strong performance across the semester outweighs a marginal showing on the exit examination, most prefer to administer secondary exit evaluations to verify that their students have retained the skills needed for the next course.

TABLE 5
EXIT STANDARDS

Reading	
ES 110 Level 1	40 pts (60%) on Reading Assessment Test (RAT), Level A (Confirmation by Informal Reading Inventory if needed)
ES 210 Level 2	40 pts (60%) on Reading Assessment Test (RAT), Level B (Confirmation by informal Reading Inventory if needed)
Writing	
ES 090 Level 1	Combined score of 60 on Sentence Skills and Final Essay (Combined score = 6 x Essay score + Sentence Skills score)
ES 100 Leve 2	Combined score of 80 on Sentence Skills and Final Essay (Combined score = 6 x Essay score + Sentence Skills score)
Computation	
MS 100 One level	75% average on 5 unit tests and NJCBSPT-CO score above 164
Algebra	
MS 110	75% average on 5 unit tests and NJCBSPT-EA score above 166
MS 120	Same as above

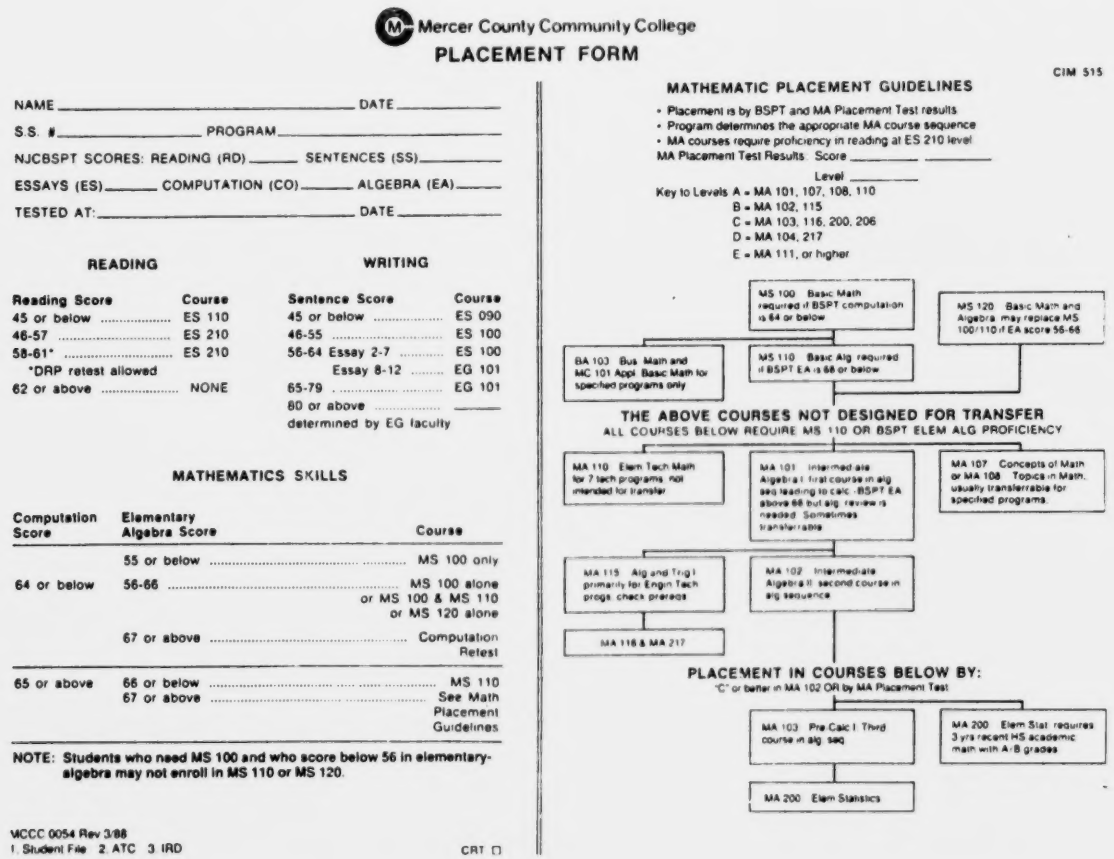
Approximately ten percent of the students enrolled in the lower level reading and writing courses are able to meet the exit standards of the entire program in a single semester. All other students who pass the lower level courses are required to enroll in the upper level courses and satisfy the established proficiency requirements.

For several years, the reading faculty experimented with commercial tests ostensibly appropriate for the evaluation of the reading skills of adult learners in a college setting. Their disappointment with these instruments led to local development of a reading assessment battery that was field tested and validated in the fall 1984 semester. The commitment to this effort preceded availability of separate NJCBSPT Reading Comprehension subtests, so the Mercer test will continue to be used as the program's exit examination. Similarly, the Sentence Skills exit test was developed locally to conform to the features of writing that are stressed in the college's remedial program. The Sentence Skills test has been revised several times since it was first introduced in 1982. The college intends to renew its

quest for approval to use these instruments to evaluate the proficiencies of remedial completers.

Program Acceptance Conference

Students are informed of their placement results by letter within a few days after testing, and a counselor meets with each student in a Program Acceptance Conference (PAC) to discuss the results in detail. Figure 1 shows the present placement scheme for all students who complete the NJCBSPT. A higher level mathematics placement test is used for students who are proficient in computation and elementary algebra.



Mercer County Community College

PLACEMENT FORM

NAME _____ DATE _____

S.S. # _____ PROGRAM _____

NJCBSPT SCORES: READING (RD) _____ SENTENCES (SS) _____

ESSAYS (ES) _____ COMPUTATION (CO) _____ ALGEBRA (EA) _____

TESTED AT: _____ DATE _____

READING

Reading Score	Course
45 or below	ES 110
46-57	ES 210
58-61*	ES 210
*DRP retest allowed	
62 or above	NONE

WRITING

Sentence Score	Course
45 or below	ES 090
46-55	ES 100
56-64 Essay 2-7	ES 100
Essay 8-12	EG 101
65-79	EG 101
80 or above	____
determined by EG faculty	

MATHEMATICS SKILLS

Computation Score	Elementary Algebra Score	Course
	55 or below	MS 100 only
64 or below	56-66	MS 100 alone or MS 100 & MS 110 or MS 120 alone
	67 or above	Computation Retest
65 or above	66 or below	MS 110
	67 or above	See Math Placement Guidelines

NOTE: Students who need MS 100 and who score below 56 in elementary-algebra may not enroll in MS 110 or MS 120.

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MATHEMATIC PLACEMENT GUIDELINES

- Placement is by BSPT and MA Placement Test results
- Program determines the appropriate MA course sequence
- MA courses require proficiency in reading at ES 210 level

MA Placement Test Results Score _____ _____

Level _____

Key to Levels A = MA 101, 107, 108, 110
B = MA 102, 115
C = MA 103, 116, 200, 206
D = MA 104, 217
E = MA 111, or higher

MS 100 Basic Math required if BSPT computation is 64 or below

MS 120 Basic Math and Algebra may replace MS 100/110 if EA score 56-66

BA 103 Bus Math and MC 101 Appl Basic Math for specified programs only

MS 110 Basic Alg required if BSPT EA is 66 or below

THE ABOVE COURSES NOT DESIGNED FOR TRANSFER

ALL COURSES BELOW REQUIRE MS 110 OR BSPT ELEM ALG PROFICIENCY

MA 110 Elem Tech Math for 2 tech programs not intended for transfer

MA 101 Intermed alg Algebra I first course in alg seq leading to calc -BSPT EA above 66 but alg review is needed Sometimes transferrable

MA 107 Concepts of Math or MA 108 Topics in Math, usually transferrable for specified programs.

MA 115 Alg and Trig I primarily for Engin Tech progs check prereqs

MA 102 Intermediate Algebra II second course in alg sequence

MA 116 & MA 217

PLACEMENT IN COURSES BELOW BY:

"C" or better in MA 102 OR by MA Placement Test

MA 103 Pre Calc I Third course in alg seq

MA 200 Elem Stat requires 3 yrs recent HS academic math with A/B grades

MA 200 Elem Statistics

FIGURE 1: PLACEMENT FORM

During the PAC interview, each student receives a leaflet which explains the interpretation of NJCBSPT scores and describes basic skills requirements. Developmental students are accepted into the degree program of their choice with provisional status or into one of three non-degree access programs (General Studies, Bilingual, or ESL). Enrollment by basic skills students in traditional college-level courses is restricted to a small list of carefully selected offerings.

Figure 2 presents a flowchart of the testing, placement, and remediation scheme for full-time students.

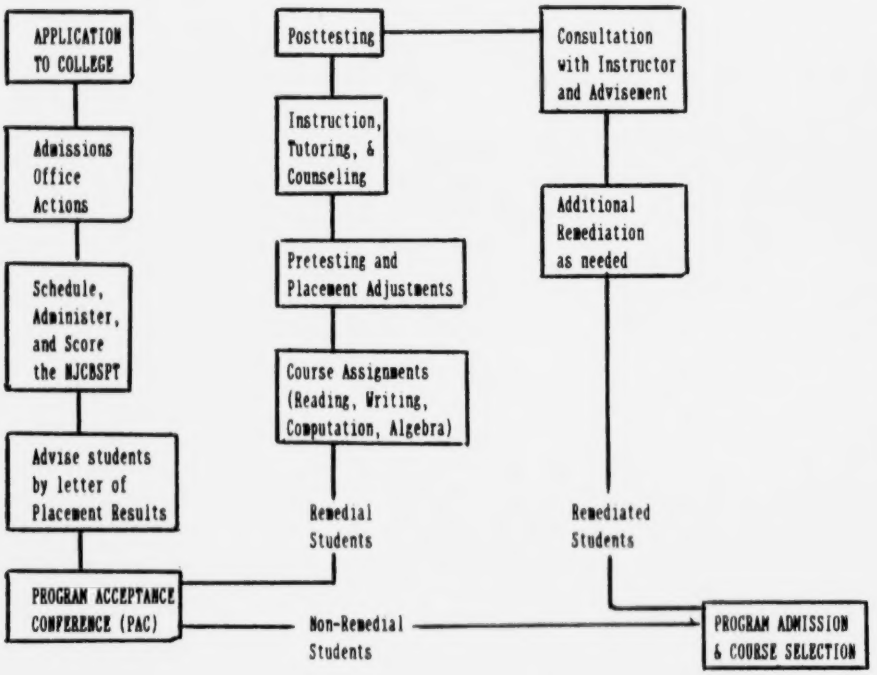

FIGURE 2: FLOWCHART, NEW FULL-TIME STUDENTS

Academic Policies

All students must commence required remediation in their first semester after testing. Full-time students must be tested before enrolling and are required in their first semester to register for all remedial courses shown on the placement form. Part-time students are tested before reaching the twelfth credit threshold and must enroll in at least one of the indicated remedial courses each semester that they attend the college. Students are expected to complete remedial requirements prior to accumulating 30 credits of coursework.

Academic progress is measured against a table of minimum quality point average and number of credits that must be earned as a function of the number of credits attempted. Insufficient progress in the first semester results in "Academic Warning" and a limit of 13 credits in the subsequent semester. Performance below standard in the second semester results in "Academic Probation" and a nine credit ceiling on enrollment. A third consecutive semester of insufficient progress results in "Academic Dismissal." These standards apply uniformly to both full- and part-time students.

Longitudinal Tracking

A master tracking tape, constructed for each entering population, stores NJCBSPT scores, placement results, and various indices of students' academic performance in both remedial and college level work. The tape is updated periodically and analyzed each year to accomplish the longitudinal evaluation of Mercer's remedial program. Selected indicators from this on-line data base are accessible to counselors and faculty advisors who need accurate and current information about student's remedial status. The system is also linked to the college's on-line registration system to ensure that testing, placement, and enrollment policies are strictly enforced.

Limited English Proficient (LEP) Students

Placement of ESL and Bilingual program students is accomplished through a battery of short tests which evaluate listening skills, reading comprehension, and English usage. Non-resident applicants are required to achieve at least a score of 450 on the Test of English as a Foreign Language (TOEFL). The Spanish version of the NJCBSPT mathematics sections are available for Hispanic students, and all students must demonstrate the same proficiencies required of native speakers who seek admission to college level mathematics. ESL and Bilingual program students are examined with the NJCBSPT after they conclude coursework in these programs. There are seven courses in the ESL program (see Table 6).

Full-time non-native speakers enroll in a program consisting of appropriate ESL courses (6-9 credits), mathematics (by placement), and one electrive. Hispanic students may choose from several introductory level college courses taught in a bilingual mode. The ESL component stresses the development of the reading, writing, and oral skills that are necessary for study and work in the United States. Students who complete the highest level writing course (ES 104) are eligible for enrollment in English

Composition (EG 101) and any other course which requires competency in written English.

Since 1981-1982, when the multi-level ESL program was instituted, enrollment in these courses has nearly doubled. Table 6 shows the semester and annual enrollments by course in ESL over the last six academic years.

TABLE 6
ENGLISH AS A SECOND LANGUAGE ENROLLMENT

	ACADEMIC YEAR						
	81-82	82-83	83-84	84-85	85-86	86-87	87-88
ES 093 Introduct to ESL	-	26	23	14	20	22	17
ES 094 Intermediate ESL	51	36	33	29	58	63	82
ES 103 ESL Writing I	34	41	36	52	59	90	76
ES 104 ESL Writing II	-	17	16	24	24	32	52
ES 113 ESL Reading I	59	49	38	43	38	64	84
ES 114 ESL Reading II	-	16	12	27	38	24	12
ES 222 ESL Conversation	13	17	14	11	31	38	25
WW Tot	88	171	116	139	206	279	335
JKC Tot	69	31	56	61	60	53	13
TOT (Dup)	157	202	172	200	266	332	348

Most of the growth in ESL enrollment has occurred in the higher level courses among full-time students attending the West Windsor campus during the daytime. Many are concurrently enrolled in high level mathematics courses in conjunction with a program in the science and technology area. They are consistently good performers in mathematics as well as in their elective courses (including such courses as physics, chemistry, engineering, and computer science). If demographic projections for the region hold, Mercer can expect strong ESL enrollment over the next several years with additional growth potential.

In general, passing rates in ESL courses have been high. Enrollees are highly motivated to master the language and earn eligibility for full acceptance into a program and eligibility to take English Composition I (EG 100) Table 7, which shows the rates recorded for the most recent academic year are representative of student performance during the last several years.

TABLE 7
ESL PASSING RATES
1987-1988

Course		Pass (%)	Course		Pass (%)
ES 093	Intro to ESL	86	ES 113	ESL Reading I	83
ES 094	Intermed ESL	63	ES 114	ESL Reading II	75
ES 103	ESL Writing I	84	ES 222	ESL Conversat	75
ES 104	ESL Writing II	86			

The success of the two lowest level courses has been uneven. During the past year, both courses were reconfigured to provide students with more intensified instruction. The first course will be replaced in 1988-89 with a six credit hour introductory course (ES 095); the second level course will now be a four credit course (ES 096) that consists of five hours of lecture and laboratory each week. We expect these changes to improve student performance at the lowest levels. Longitudinal tracking is also an essential component of the ESL and Bilingual programs. Although not elaborate or sophisticated, the follow-up reports are valuable for monitoring the progress of students in these programs. Copies of these reports have appeared in previous effectiveness reports.

COURSES, FACILITIES, AND STAFFING

Courses

Two levels of reading (ES 110 and ES 210) and two levels of writing (ES 090 and ES 100) are offered. The mathematics program consists of self-paced courses in computation (MS 100) and algebra (MS 110). A new course, Basic Mathematics and Algebra (MS 120) was introduced in fall 1985. It integrates all of the topics of the separate courses (MS 100 and MS 110) and covers additional material as time permits. Enrollment in MS 120 is restricted to those students who primarily need a review of previously mastered material. Each Academic Skills course combines classroom and laboratory instruction using individualized materials. A detailed description of each of these courses is presented in the next section.

Facilities and Resources

In 1987-88, the Academic Skills facilities included two reading laboratories, a writing center, two mathematics laboratories, a tutoring center, and several classrooms. The writing program shared use of a word processing laboratory with other English courses. New space, to be occupied in fall 1988, will add an ESL laboratory, mathematics laboratory, and math learning center. The math lab is equipped with 12 Apple compatible microcomputers, and the ESL lab will house 20 IBM compatibile units by mid-year. This fall will be the first time that the writing program will have

exclusive use of its own word processing facility. Support services include intensive peer tutoring, counselor intervention strategies, and frequent advisement sessions. Pre-testing establishes entry level abilities and provides diagnostic information; post-testing supplements other evaluation methods to ensure consistent application of exit standards.

Both mathematics courses utilize the services of the Academic Testing Center to generate and score unit tests generated from a vast item bank of mathematics problems. The on-line scoring system provides students with immediate results and prescriptive information for incorrect answers. Faculty receive summary reports each week and item difficulty analyses each semester.

Staffing

For the 1987-1988 academic year, the full-time Academic Skills staff consisted of three administrators, nine faculty, five technical assistants, and two counselors. They are identified in Table 8.

TABLE 8
FULL-TIME ACADEMIC SKILLS STAFF

Administrators	Faculty
Al Porter, Ed.D., Chairperson and Assistant Dean for Academic Affairs	Isali Alsina, Ph.D., Assistant Professor
Mary Black, Ph.D., Director of Academic Skills	Noreen Duncan, M.A., Assistant Professor
Kenneth Robey, Ph.D., Director of Academic Testing	Diane Friedman, M.S., Instructor
	Deborah Harvey-Kell, M.Ed., Instructor, and Coordinator of Mathematics
Technical Assistants	Laura Knight, M.A. Assistant Professor
	Regina Mezei, Ph.D., Associaate Professor and Coordinator of ESL
Johanna Rooda, B.S., Technical Assistant	Marianne Reynolds, Ed.D., Associate Professor and Coordinator of Reading
James Genwright, Technical Assistant	Michael Shea, Ph.D., Professor and Coordinator of Writing
Beatrice Machunze, B.A., Senior Technical Assistant II	Margaret Terrano, M.A., Instructor
Margo Melchior, Senior Technical Assistant	
Frances Moore, B.A., Senior Technical Assistant II	
Counselors: Susanne Kotch and Martha Gunning	

In addition to those listed above, several full-time members from the English and mathematics departments teach at least one Academic Skills course each year. Similarly, Academic Skills faculty teach at least one college-level course as their schedules permit. This exchange has encouraged a climate of interchange, cooperation, and subject-matter articulation.

Experienced part-time faculty complement this full-time staff, and new adjuncts are recruited as the need arises. Part-time instructors must possess a relevant master's degree, show a strong commitment to basic education, and have prior teaching experience. Orientation sessions,

training workshops, close supervision, and an evaluation system ensure that part-time faculty meet the high performance standards established by the college.

A large number of peer and paraprofessional tutors support the basic skills program. In addition to individual services by appointment, tutors conduct group sessions and provide assistance to students in the laboratory setting. New tutors are recruited annually from area colleges and from the Dean's List at Mercer. Training sessions and workshops are conducted periodically for the tutoring team.

READING PROGRAM

Lecture classes in reading (ES 110 and ES 210) consist of two hours each week of vocabulary study, instruction in specific topics, guided reading, and practice sessions. In the two laboratory sessions each week, students work independently using materials appropriate for their reading levels. Staffing in the reading laboratory is shared equally between instructors and technical assistants; peer tutors assist the students in laboratory sessions.

Student progress is evaluated through frequent testing of vocabulary and comprehension. The reading proficiency standard must be reached in order to exit the program: a score of 40 points on the locally developed Reading Assessment Test has been established as the exit requirement. Those students completing ES 110 who are able to satisfy the exit requirement for ES 210 are not obligated to enroll in the higher level course.

Reading Competencies: The elements of a sound academic foundation were described eloquently and concisely by the Project Equality team ("The Basic Academic Competencies and the Basic Academic Curriculum," November, 1981). Mercer has adopted these objectives for the reading program; every student is expected to:

-identify, comprehend, and summarize the main idea in college level passages;
-interpret meanings, draw inferences, and identify purposes in written words;
-define unfamiliar words by decoding, using context clues, or by using a dictionary;
-distinguish the writer's opinions from factual information within a written work; and
-adjust reading speed and method (survey, skim, review, questions, master) according to the type of reading material and purpose for reading.

Course descriptions for the two principal offerings which constitute thme reading program are shown below.

COURSE DESCRIPTIONS, READING PROGRAM

BASIC READING (ES 110) - 3 credits 2 Lecture/2 Laboratory Hours

Designed to prepare students to read college textbooks and related reading material. The development of college-level reading, vocabulary, and comprehension skills (main idea, details, inference, drawing conclusions) required for content-area reading will be stressed. Each student is guided in reading at a suitably challenging level in a laboratory environment.

COLLEGE READING (ES 210) - 3 credits 2 Lecture/2 Laboratory Hours

Designed to provide the student with practice in reading and analyzing the thinking involved in appreciating texts from the humanities and natural, social, and applied sciences. Emphasis will be placed on developing a flexible reading rate and practical techniques for reading in the content areas. Each student is guided in reading at a suitably challenging level in a laboratory environment.

WRITING PROGRAM

Lecture classes in Sentence Composition (ES 090) offer instruction in developing and improving standard English sentences. Basic Composition (ES 100) classes emphasize developing sentences that support a topic. At the conclusion of the program, a student is expected to write a paragraph consisting of at least twelve English sentences that strongly support a common topic.

Students in both courses work in the Writing Center for a minimum of two hours per week. Faculty members and technical assistants, aided by peer tutors, share in the supervision of Writing Center classes. The exercises in the Center stress composing and revising sentences and paragraphs in standard English.

Frequent evaluation of sentences and paragraphs makes students aware of their progress. A sentence skills examination used at the beginning and end of the semester evaluates each student's ability to compose pointed and conventional English sentences in a variety of patterns. A final composition is scored holistically to determine if a student writes well enough to benefit from college-level English Composition. Normally, a student starting at the Sentence Composition (ES 090) level requires two semesters of remediation to achieve this proficiency.

Composition Competencies: The objectives of the writing program stress cultivation of each student's ability to:

-develop the facility of producing fluent rough drafts;
-question the words and phrases whose meanings are confusing or vague;
-question sentences that do not clearly develop the meanings of the sentences that precede them;
-rewrite confusing phrases by combining more specific and logically related words in an order that the English language prescribes, and
-apply the conventions of grammar and punctuation that will make the writer's ideas readable.

Course descriptions for ES 090 and ES 100 appear below.

COURSE DESCRIPTIONS, WRITING PROGRAM

SENTENCE COMPOSITION (ES 090) - 3 credits 2 Lecture/2 laboratory Hours
Emphasizes correcting common errors in grammar and punctuation and writing and combining standard English sentences. The course stresses practicing the four traditional sentence patterns as well as other common writing patterns. The course is intended for those whose New Jersey Basic Skills Placement Test performance indicates severe problems with writing standard English sentences.

BASIC COMPOSITION (ES 100) - 3 credits 2 Lecture/2 Laboratory hours
Emphasizes (1) correcting common errors in grammar and punctuation and (2) relating one standard English sentence to another in support of a topic. The course is intended for those who can write standard English sentences, but who need practice writing sentences that work together to support a topic. This need is determined by the student's performance on the New Jersey Basic Skills Placement Test.

COMPUTATION AND ALGEBRA

Instruction in both Basic Mathematics (MS 100) and Basic Algebra (MS 110) utilizes two class meetings per week taught by a faculty member and two laboratory hours per week taught by a technical assistant. The lecture classes proceed sequentially through the course topics and provide students with the strategies for logical problem-solving skills. In the laboratory, students become practiced in the application of these skills to relevant problems. Technical assistants, working under the supervision of faculty members, guide students through a self-paced program which follows a mastery model. Experienced peer tutors provide students with personal support and assistance in each laboratory session.

There are generous opportunities for students to obtain assistance beyond scheduled laboratory time, and paraprofessional tutors in the Mathematics Learning Center provide individualized help to students in all

mathematics courses. Instructional software is available for self-testing or for personal study in all of the topics covered in the computation and algebra courses.

Tests administered by the Academic Testing Center allow the faculty and staff to monitor student progress and verify exit competency. Extensive item banks, derived from course topics and revised regularly, permit computer generation of a unit test whenever a student is ready to demonstrate mastery. The system provides immediate on-line scoring and prescriptive information which the student can bring back to the laboratory if additional help is needed.

Highly motivated students with marginal deficiencies may be able to demonstrate exit competency in computation in less than a full semester, but others may require additional laboratory time each week to finish within the framework of a conventional term. Normally, students must pass Basic Mathematics (MS 100) before enrolling in Basic Algebra (MS 110). However, co-registration for the two courses is permitted for those students with good verbal skills whose NJCBSPT algebra score is in the range 156-166. Basic Mathematics and Algebra (MS 120) integrates the computation and algebra objectives into a single course. Although originally designed for students planning to enter technical programs, it is available to other eligible students whose background and NJCBSPT scores indicate a high probability that they will benefit from this approach.

Basic Mathematics (MS 100) competencies: Unit objectives require the student to be able to:

-perform addition, subtraction, multiplication, and division using natural numbers, fractions, and decimals;
-interpret and apply concepts of ratio, proportion, and percent;
--perform computations involving exponents;
-approximate answers to numerical problems and judge the reasonableness of a computed result;
-apply the principles of area and perimeter in computations involving plane figures;
-interpret word problems and formulate the solutions in mathematical terms; and
-construct, interpret, rearrange and/or solve elementary algebraic equations involving a single variable.

Basic Algebra (MS 110) competencies: Unit objectives require the student to demonstrate the ability to:

-perform operations with signed numbers, write and evaluate numbers in exponential notation, combine similar terms, rearrange algebraic expressions, and demonstrate an understanding of the proper order of operations;
-solve simple first degree equations in one variable, solve formulas or first degree equations with more than one variable, graphically represent an inequality statement with one variable;
-perform operations including multiplication and factoring involving monomials, binomials, and polynomials;

-perform operations with algebraic fractions, solve fractional first degree equations; and
-interpret word problems and formulate algebraic expressions that will yield verifiable solutions.

Course descriptions appear below.

COURSE DESCRIPTIONS, MATHEMATICS PROGRAM

BASIC MATHEMATICS (MS 100) - 3 credits 2 Lecture/2 Laboratory Hours
A developmental mathematics course designed for students needing a review of basic arithmetic, including some geometry and an introduction to algebra. Topics to be studied include operations with whole numbers, decimals, fractions, percents, ratio and proportion, area and perimeter, signed numbers, concluding with an introduction to algebraic equations. Placement determined by NJCBSPT results.

BASIC ALGEBRA (MS 110) - 3 credits 2 Lecture/2 Laboratory Hours
A developmental mathematics course designed for students beginning their study of algebra and for those who need to strengthen their mastery of the fundamentals. Topics include signed numbers, exponents, polynomials, factoring, inequalities, and first degree equations. All treatments emphasze applications involving simple verbal problems.

BASIC MATHEMATICS AND ALGEBRA (MS 120) - 5 credits 4 Lect/3 Lab Hours
A development course in basic mathematics, algebra, and geometry. Topics include all of the material covered in MS 100 and MS 110 plus additional preparation for students intending to study in any technical program. Eligibility for this option is determined by the New Jersey Basic Skills Placement Test.

OUTCOMES

TWO YEAR FOLLOW-UP OF THE FALL 1986 COHORT

Introductory Comment

This section is based upon analyses of the college's longitudinal tracking data. Note, however, that the dynamic nature of the files which constitute the tracking system will necessarily yield small discrepancies from table to table. This is a consequence of a variety of events across the two-year followup period, including: errors and changes in students' social security numbers; the removal of deceased students from the file; grade changes in remedial and college-level courses; and adjustments in remedial placements. The resulting differences are small and do not significantly affect the overall findings.

Testing, Placement and Enrollments

As noted previously, Mercer has sustained its high testing rate for six consecutive years. Unfortunately, there has been little change in the percentage of students identified as needing remediation over this period of time. Table A-1 summarizes the testing, placement, and enrollment of the fall 1986 full-time and part-time cohort after two years. The first two columns of this table (Tested and Identified for Remediation) match the initial data of the fall 1986 Questionnaire Report submitted in March 1987.

TABLE A-1
TESTING, PLACEMENT, AND ENROLLMENT
TWO YEAR FOLLOW-UP, FALL 1986 COHORT

Skill Area	Tested* F/T #	Tested* P/T #	Identified for Remediation FT #	FT %	Identified for Remediation P/T #	P/T %	Enrolled in Rem Summ 86 - Spr 88 F/T #	F/T %	Enrolled in Rem Summ 86 - Spr 88 P/T #	P/T %	Enrolled in Coll Sp88; not in Rem F/T #	F/T %	Enrolled in Coll Sp88; not in Rem P/T #	P/T %
Read	1200	775	518	43	324	42	491	95	247	76	10	2.0	9	3.6
Writ	1200	775	543	45	346	45	501	92	261	75	12	2.4	10	3.8
Comput	1200	775	606	51	450	58	552	91	337	75	12	2.2	8	2.4
Algebr	1200	775	773	64	619	80	592	77	356	58	48	8.1	53	14.9

*NOTE: The college continued to test those who had not completed the NJCBSPT before the submission of the Fall 1986 questionnaire. To date, the college has tested 1247 FT students and 827 PT students from the cohort, for a total of 2,074 students as of March 1988.

As shown in Table A-1, 45% of the fall 1986 cohort were identified for remediation in writing and roughly 43% needed reading. Among full-time students, 51% required computation and 64% were identified for algebra remediation. The part-time percentages were higher, with 58% needing computation and 80% identified for algebra. The algebra percentages are based upon all members of the cohort, regardless of program of study. Although some programs do not

require elementary algebra, it is not possible in advance to be certain of a student's program of study; some are undecided at the time of admission, while others change their objectives one or more times after enrolling.

By the end of the first year (spring 1987) enrollment of full-timers needing remediation in reading, writing, and computation exceeded 90%, while the rate for part-timers was at or above the 71% level. Enrollment in algebra was understandably lower (73% full-time and 54% part-time), largely due to the sequential nature of computation and algebra.

Among both full- and part-time students who were enrolled in the college in spring, 1988, 2-4% of those who needed remediation in reading, writing, or computation still were not enrolled in the required course. Again, the algebra percentages were higher at 8% for full-timers and 15% for part-timers.

The algebra circumstance deserves additional comment. When the annual questionnaire is prepared, Mercer identifies for remediation all students who do not demonstrate proficiency on the NJCBSPT. The college is not able to differentiate in advance who, because of eventual program of study, will not need elementary algebra. Since all subsequent enrollment calculations are based upon the group initially classified as needing remediation, the enrollment percentages will be depressed. Moreover, since elementary algebra carries a computation prerequisite and many students do not maintain continuous enrollment across the follow-up period, the attainable algebra enrollment percentages will be low.

Table A-2 provides NJCBSPT mean scores for all students and, separately, for remedial students. The first two columns show actual mean scores earned by all full-time and part-time students in the fall 1986 cohort; the second pair of columns show mean scores for a 10% representative sample of full-time and part-time remedial students for fall 1986.

TABLE A-2
NJCBSPT MEAN SCORES
FALL 1986 COHORT

	Entire Cohort		Remedial Students	
Skill Area	Full Time	Part Time	Full Time	Part Time
Reading				
NJCBSPT-RC	159.36	160.20	147.13	147.85
Writing				
NJCBSPT-SS	162.55	162.57	150.64	152.63
NJCBSPT-Essay	6.78	6.86	5.80	5.90
Computation				
NJCBSPT-CO	163.31	161.78	155.67	155.63
Algebra				
NJCBSPT-EA	162.63	157.10	156.39	154.88

Cohort data are actual; remedial student data based on 10% sample.

Completion of Remedial Courses

Cumulative course outcomes for the fall 1986 cohort by skill area and by enrollment status are presented in Table B-1. All counts are unduplicated and use as a base the enrollment data from table A-1.

TABLE B-1
REMEDIAL COURSE OUTCOMES:
REMEDIATION COMPLETION BY ENROLLED STUDENTS
FALL 1986 COHORT, TWO YEAR FOLLOW-UP

Skill Area	Remediat Needed FT	PT	Enrolled 1986-88 FT	PT	Students Completing Highest Level Conventional FT	PT	Other FT	PT	Total FT	PT
Reading										
Number	518	324	491	247	274	112	76	74	350	186
Percent	43	42	95	76	56	45	15	30	71	75
Writing										
Number	543	346	501	261	326	142	56	52	382	194
Percent	45	45	92	75	65	54	11	20	76	74
Computation										
Number	606	450	552	337	384	209	25	45	409	254
Percent	51	58	91	75	70	62	5	13	74	75
Algebra										
Number	773	619	592	356	398	236	33	40	431	276
Percent	64	80	77	58	67	66	6	11	73	77

Enrollments shown in Table B-1 are unduplicated totals for summer 86-spring 88, and completions refer to fulfillment of all remedial requirements in the skill area. "Conventional" refers to students who enrolled in and completed the highest level remedial course at Mercer in a standard semester. "Other" includes: completions at other accredited colleges; completion of requirements for the upper level course in reading or writing through performance in the corresponding lower level course; and completions as a result of remedial course grade changes after the conclusion of a semester.

Students are able to complete remediation by one of several routes. The largest number, counted in the column labeled "conventional," represents students who completed remedial requirements by virtue of satisfactory performance in the computation course (MS 100), algebra course (MS 110), and the upper level reading (ES 210) and writing (ES 100) courses over the two-year followup period. Any student who completed remediation and for whom a grade was available at the conclusion of the semester of enrollment in the respective course is counted in this category.

The column labeled "other" includes several groups. In the case of the bilevel reading and writing programs, it includes those students who meet program

exit requirements at the conclusion of study in the lower level courses. In addition, this category includes students who present transcript evidence that they completed a comparable basic skills course at another accredited college or university. In most instances, students secure prior approval to be sure that they select the appropriate courses. Finally, the "other" category captures instances in which grade changes (after the normal deadline for submission of course grades) cause an increase in the tally of remedial completers.

In all cases, the column labeled "other" represents students who completed remediation through coursework at Mercer or elsewhere. It does not include any students whose remedial placement was revised for any reason during the two year period. Consequently, the last ("total") column, reflects the unduplicated number and percent who completed remedial requirements via coursework in each skill area.

These aggregated and unduplicated results show that approximately 75% of all full-time and part-time students who enrolled in needed remediation completed requirements within two years. Of course, some of these completers required more than one semester, either because they start below the highest level or were not successful on their first attempt.

Of course, some students (particularly part-timers) did not enroll in required remediation during the two-year time frame of this followup. Table B-2 replicates most of the data from Table B-1. However, the last two columns compare the completion rates as a function of those who enrolled versus those who were originally identified for remediation by skill area.

TABLE B-2
REMEDIAL COURSE OUTCOMES:
PERCENTAGES OF REMEDIAL COMPLETERS
FALL 1986 COHORT, TWO YEAR FOLLOW-UP

Skill Area	Remediat Needed FT	PT	Enrolled 1986-88 FT	PT	Total Completers FT	PT	% of Enrolled FT	PT	% of Needed FT	PT
Reading	518	324	491	247	350	186	71	75	68	57
Writing	543	346	501	261	382	194	76	74	70	56
Computat	606	450	552	337	409	254	74	75	67	56
Algebra	773	619	592	356	431	276	73	77	56	46

Naturally, the completion percentages are lower when measured against the numbers originally identified as needing remediation. The dimunition is most significant among part-time students and among those needing algebra remediation. The part-timer effect is understandable for several reasons. For those with multiple deficiencies, a lower percentage are able to begin all remedial work in their first semester. Moreover, their low average course load in subsequent semesters and their pattern of non-continuous enrollment across semesters further diminishes the remedial completion rates of part-timers. As discussed

previously, the algebra percentages are not surprising in light of the computation prerequisite for the course.

The dropout effect for both full and part-timers obviously reduces the potential yield of remedial completers. Table B-3 summarizes the numbers of students by skill area who were present in the spring 1988 semester but had not yet completed remediation.

TABLE B-3
REMEDIAL COURSE OUTCOMES:
NON COMPLETERS IN SPRING 1988
FALL 1986 COHORT, TWO YEAR FOLLOW-UP

Skill Area	Remediat Needed FT	PT	Non-completers present in SPR 88: Not in Remediat FT	PT	Remediation not complete FT	PT	Total Number FT	PT	% of Needed FT	PT
Reading	518	324	10	9	19	14	29	23	5.6	7.1
Writing	543	346	12	10	25	16	37	26	6.8	7.5
Computat	606	450	12	8	26	13	38	21	6.2	4.7
Algebra	773	619	48	53	81	68	129	121	16.7	19.5

The first column, which repeats data from Table A-1, shows the number of students who were enrolled in the college in spring 1988 who had not yet commenced required remediation. The second column represents students who did commence remediation and were present in the college in spring 1988, but who had not completed requirements. With the exception of algebra, the percentages are small. Apparently, many of the non-completers did not return in their second spring. The algebra case again requires careful interpretation because of the sequential nature of computation and algebra. Finally, some "non-completers" appear to be deferring algebra enrollment, and others are electing the one college math course which does not carry an algebra prerequisite.

Follow-up of Full-time Students

Tables C-1 and C-2 provide an overview of the academic performance of the fall 1986 full-time cohort after four semesters. The cohort is partitioned into three major groups: (1) students not identified for remediation; (2) students needing remediation who completed requirements; and (3) students needing remediation who did not complete requirements.

The last category includes students who continue to be enrolled in remediation, students who did not pass a remedial course, and students who did not enroll in a required remedial course. Table C-1 shows term data for the spring 1988 semester; Table C-2 shows cumulative data for the two year period (fall 1986 through spring 1988).

For each category by skill area, three measures are used in both the term and cumulative academic profiles to evaluate academic progress: (1) grade point average: mean and % 2.0 or above; (2) college credits: mean attempted and mean earned; and (3) successful survivor rates: percent of original cohort returning spring 1988 with a GPA of 2.0 or above.

TABLE C-1
FOLLOW-UP OF FULL TIME STUDENTS
SPRING 1988 TERM DATA
FALL 1986 COHORT

Remed Status	Skill Area	# FT Fall 1986	Returned in Spring 1988 FT	PT	Tot	%	GPA Data Mean	% ≥ 2.0	Mean Coll Credits Att	Earn	Succ Surv Rate
Remed	Read	699	251	106	357	51	2.55	78	11.6	10.5	40%
Not	Writ	680	225	111	336	49	2.53	78	11.3	10.3	38%
Needed	Comp	609	216	93	309	51	2.40	73	11.2	10.1	37%
	Alg	434	154	66	220	51	2.51	78	11.4	10.5	39%
Remed	Read	382	121	75	196	51	1.84	53	9.5	8.1	27%
Needed	Writ	404	145	66	211	52	1.97	56	10.2	8.7	27%
and	Comp	439	153	84	237	54	2.17	65	10.4	9.3	35%
Complete	Alg	452	188	86	274	61	2.16	64	10.6	9.3	39%
Remed	Read	160	5	11	16	10	0.50	13	2.1	1.2	01%
Needed	Writ	157	7	15	22	14	0.75	18	3.5	2.7	03%
but not	Comp	193	8	15	23	12	0.93	22	4.0	2.5	01%
Complete	Alg	355	35	40	75	21	1.77	49	7.9	6.8	10%

NOTE: All data are for the spring 1988 term by full-time students from the fall 1986 cohort who enrolled in spring 1988.

The spring 1988 return rates for fall 1986 remediated full-timers matched the rates for non-remedial entrants in reading, writing, and computation and exceeded it in algebra. These return rate data confirm previous findings reported at Mercer and elsewhere: remediated students are retained at levels similar to the rates achieved by students who entered with college-level skills, while unremediated skills-deficient students are unlikely to persist into the fourth semester after initial enrollment. The data also show that roughly one-third of both non-remedial and remediated full-timers who were enrolled four semesters later were registered for a part-time course load. In short, community college students do not follow traditional enrollment patterns. Part-timers interrupt their attendance, full-timers often return as part-timers, and many students leave after fulfilling a short-term objective. There is increasing evidence, for example, that some students leave after one year to take advantage of early transfer opportunities. Indeed, some developmental students leave Mercer after one year because of a promise of admission by another institution if they fulfill specific remedial requirements.

TABLE C-2
FOLLOW-UP OF FULL TIME STUDENTS
SPRING 1988 CUMULATIVE DATA
FALL 1986 COHORT

Remed Status	Skill Area	# FT Fall 1986	Returned in Spring 1988 FT	PT	Tot	%	GPA Data Mean	% ≥ 2.0	Mean Coll Credits Att	Earn	Succ Surv Rate
Remed	Read	699	251	106	357	51	2.52	75	44.8	41.3	38%
Not	Writ	680	225	111	336	49	2.50	75	44.7	41.0	37%
Needed	Comp	609	216	93	309	51	2.45	75	44.2	40.4	38%
	Alg	434	154	66	220	51	2.49	77	46.4	42.6	39%
Remed	Read	382	121	75	196	51	1.89	48	30.6	27.7	25%
Needed	Writ	404	145	66	211	52	1.99	51	32.4	29.6	27%
and	Comp	439	153	84	237	54	2.11	54	34.3	31.4	29%
Complete	Alg	452	188	86	274	61	2.20	62	36.5	33.5	37%
Remed	Read	160	5	11	16	10	0.82	13	10.3	5.9	01%
Needed	Writ	157	7	15	22	14	0.96	23	12.7	11.4	03%
but not	Comp	193	8	15	23	12	1.12	26	18.6	12.7	03%
Complete	Alg	355	35	40	75	21	1.73	36	25.1	23.3	09%

NOTE: All performance data are cumulative from fall 1986- spring 1988 by fall 1986 full-time students who enrolled in spring 1988.

The cumulative grade point average data (Table C-2) for non-remedial students reveals an average GPA of approximately 2.50 across the four skill areas that were studied. The somewhat lower range for remediated students (1.89-2.20) was still much higher than the average GPA (0.82-1.73) for students who did not complete required remediation in one of the skill areas.

A grade point average of 2.0 is normally associated with good academic standing and is the minimum acceptable cumulative average to be eligible for a college degree. By spring 1988, roughly 75% of the college-level entrants had reached the 2.0 GPA threshold. Among the population that completed remediation, 48%-62% were at or above the 2.0 GPA threshold. In contrast, only 12%-36% of those students who did not complete remediation were able to reach this GPA standard. The spring 1988 term data (see Table C-1) for the three study groups show a pattern for both the remediated and college-level members of the cohort which is similar to their respective cumulative records.

The cumulative record of college credits attempted and earned by each group over the four-semester follow-up period demonstrates that remediated students and college-level entrants make comparable progress following their semester of admission. The range of average credits earned by those students who completed remediation (27.7-33.5) was understandably below the range for non-remedial students (40.4-42.6). This margin of roughly twelve credits closely corresponds

to the non-degree credit courseload of a first semester full-time remedial student. In contrast, students who did not complete required remediation tallied much lower average credit totals (5.9-23.3).

This credit disparity means that the initial disadvantage of remedial entrants remains roughly constant over time. During the three semesters following admission, remedial completers are able to accumulate college-level credits at a rate comparable to students who were not identified for remediation. Of course, remedial entrants will continue to suffer a credit deficit because their initial coursework does not carry college credits. Nevertheless, their circumstance is far better than those who did not complete remediation.

The spring 1988 term data (see Table C-1) reveal the same pattern as the cumulative record for each study group. The range of average credits earned by college-level entrants (10.1-10.5) and by remediated students (8.1-9.3) are almost comparable, while the unremediated population earned far fewer credits (1.2-6.8) on average.

The "successful survivor" measure combines return rates and GPA data into a single indicator of academic success. As expected, students who complete remediation do not do as well on this indicator as their college-level counterparts; the comparable return rates of the two groups are offset by the lower grade point averages of remediated students. Cumulative two-year outcomes for the fall 1986 cohort are consistent with findings reported for previous cohorts. College-level students achieved cumulative "successful survivor" rates of 37-41% across the four skill areas, while remediated students were in the range 25-37%. In contrast, the data demonstrate the deteriorating academic situation among students who did not complete remediation: only 1%-9% of this group attained "successful survivor" status. In short, unremediated students are least likely to be enrolled after four semesters, and few of those who do enroll are able to attain a cumulative grade point average of 2.0 or higher.

This year's findings for the fall 1986 cohort generally parallel the two year follow-up of the fall 1985 cohort reported in Mercer's previous self-assessment. The last section of this report summarizes performance outcome data across the last four cohorts.

Although these outcome data offer compelling evidence that remediation can make a significant difference in preparing students for college-level study, one must be cautious about the numerical indices. For example, the number of students in the third category (not remediated) is consistently small. This adds great risk to any comparisons of percentages. Moreover, we have no knowledge about any of the students who were not enrolled four semesters after admission.

Performance in College-level Courses

The performance of the fall 1986 cohort has been monitored in English Composition I (EG 101), Intermediate Algebra (MA 101), and selected entry-level college courses in various disciplines. Two study groups are used for these follow-ups:

(1) students not identified for remediation in the skill area, and
(2) students who have completed required remediation in the skill area.

Data in this section are presented in pairs of tables. The first table in each pair shows passing rates which include "withdrawals" (the standard method used by Mercer); the second table in each pair recalculates passing rates without the "W" grades to meet the Basic Skills Council's guidelines.

Tables D-1 compare the performance by skill area of full-time students in the two student groups in English Composition I. Table D-1a includes "W" grades; Table D-1b excludes withdrawals.

TABLE D-1a
PERFORMANCE IN ENGLISH COMPOSITION I (EG 101)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

Skill Categ	Student Status	Full-Time No. Enr	Full-Time Pass n	Full-Time Pass %	Part-Time No. Enr	Part-Time Pass n	Part-Time Pass %	All (FT+PT) No. Enr	All (FT+PT) Pass n	All (FT+PT) Pass %
Reading	Rem Not Req	129	114	88	76	68	89	205	182	89
	Rem Complete	151	114	75	37	33	89	188	147	78
Writing	Rem Not Req	82	69	84	56	52	93	138	121	88
	Rem Complete	239	186	78	69	56	81	308	242	79

All data include Ws & are cumulative from Spring 1987 through Spring 1988.

TABLE D-1b
PERFORMANCE IN ENGLISH COMPOSITION I (EG 101)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

Skill Categ	Student Status	Full-Time No. Enr	Full-Time Pass n	Full-Time Pass %	Part-Time No. Enr	Part-Time Pass n	Part-Time Pass %	All (FT+PT) No. Enr	All (FT+PT) Pass n	All (FT+PT) Pass %
Reading	Rem Not Req	127	114	90	73	68	93	200	182	91
	Rem Complete	136	114	84	35	33	94	171	147	86
Writing	Rem Not Req	78	69	88	56	52	93	134	121	90
	Rem Complete	220	186	85	66	56	85	286	242	85

All data exclude Ws & are cumulative from Spring 1987 through Spring 1988.

Passing rates have been high in general for English Composition ever since rigorous placement procedures were established. For example, the 77% college-wide passing rate (including Ws) during the past academic year matches the five year history of the course. The cohort data for English Composition confirm that writing-remediated students continue to be competitive with those who possess college-level skills at the time of admission. Although their grades tend to be lower, remediated students achieve respectable passing rates in this key college course. The combined record of full-time and part-time students from the cohort

shows a passing rate of 79% for writing-remediated students and 88% for students not identified for remediation.

The cumulative performance of students who enrolled in Intermediate Algebra, MA 101 (separated by the same study groups) is presented in Tables D-2. As before, the first table in the pair includes "Ws" and the second table excludes "W" grades.

TABLE D-2a
PERFORMANCE IN INTERMEDIATE ALGEBRA (MA 101)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

		Full-Time			Part-Time			All (FT+PT)		
Skill	Student	No.	Pass		No.	Pass		No.	Pass	
Categ	Status	Enr	n	%	Enr	n	%	Enr	n	%
Algebra	Rem Not Req	50	35	70	7	5	71	57	40	70
	Rem Complete	205	140	68	106	76	72	311	216	69

All data include Ws & are cumulative from Spring 1987 through Spring 1988.

TABLE D-2b
PERFORMANCE IN INTERMEDIATE ALGEBRA (MA 101)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

		Full-Time			Part-Time			All (FT+PT)		
Skill	Student	No.	Pass		No.	Pass		No.	Pass	
Categ	Status	Enr	n	%	Enr	n	%	Enr	n	%
Algebra	Rem Not Req	46	35	76	7	5	71	53	40	75
	Rem Complete	189	140	74	96	76	79	285	216	76

All data exclude Ws & are cumulative from Spring 1987 through Spring 1988.

Historically, overall passing rates in Intermediate Algebra have been lower than for English Composition. In 1987-88, for example, the college-wide passing rate in the MA 101 course was 65% (including withdrawals). However, for the first time there is cohort data showing that algebra-remediated students are competitive with college-level entrants in Intermediate Algebra: their passing rates were virtually identical in this followup. The cohort comparison data in the final section of this report show that this represents significant improvement over previous entering classes. Nevertheless, the college will continue to focus on ways to increase overall student success in Intermediate Algebra.

The passing rates in two other mathematics courses also were investigated:

MA 107: Concepts of Mathematics - Course for students in liberal arts and non-technical programs covering the following concepts: numberation systems, set theory, mathematical systems, group theory, and logic.

MA 108: Topics in Mathematics - Course for students in liberal arts and non-technical programs covering three major topics: linear programming, probability, and statistics.

These courses, which primarily serve students in liberal arts programs, attract low enrollment. Overall passing rates in MA 107 and MA 108 are generally higher than the rates recorded by courses in the college algebra and precalculus sequence. Tables D-3 summarize the cohort findings for MA 107 and MA 108.

TABLE D-3a
PERFORMANCE IN OTHER COLLEGE MATH (MA 107/108)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

		Full-Time			Part-Time			All (FT+PT)		
Skill	Student	No.	Pass		No.	Pass		No.	Pass	
Categ	Status	Enr	n	%	Enr	n	%	Enr	n	%
Algebra	Rem Not Req	20	15	75	4	4	100	24	19	79
	Rem Complete	61	43	70	10	10	100	71	53	75

All data include Ws & are cumulative from Spring 1987 through Spring 1988.

TABLE D-3b
PERFORMANCE IN OTHER COLLEGE MATH (MA 107/108)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

		Full-Time			Part-Time			All (FT+PT)		
Skill	Student	No.	Pass		No.	Pass		No.	Pass	
Categ	Status	Enr	n	%	Enr	n	%	Enr	n	%
Algebra	Rem Not Req	16	15	94	4	4	100	20	19	95
	Rem Complete	53	43	81	10	10	100	63	53	84

All data exclude Ws & are cumulative from Spring 1987 through Spring 1988.

Students who complete algebra remediation appear to be exceptionally well-prepared for those college mathematics courses that are not part of the pre-calculus sequence. As observed with previous cohorts, the passing rate of algebra-remediated students (75%, including Ws) and the passing rate of students not identified for algebra remediation (79%) exceed the record of members of these respective groups who enrolled in Intermediate Algebra (MA 101). Note, however, that the MA 107/108 sample sizes are small.

Tables D-4 combine data for all entry-level college mathematics courses: MA 101 (intermediate Algebra), MA 107 (Concepts of Mathematics), and MA 108 (Topics in Mathematics).

TABLE D-4a
PERFORMANCE IN ALL COLLEGE MATH (MA 101/107/108)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

		Full-Time			Part-Time			All (FT+PT)		
Skill	Student	No.	Pass		No.	Pass		No.	Pass	
Categ	Status	Enr	n	%	Enr	n	%	Enr	n	%
Algebra	Rem Not Req	70	50	71	11	9	82	81	59	73
	Rem Complete	256	183	71	116	86	74	382	269	70

All data include Ws & are cumulative from Spring 1987 through Spring 1988.

TABLE D-4b
PERFORMANCE IN ALL COLLEGE MATH (MA 101/107/108)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

		Full-Time			Part-Time			All (FT+PT)		
Skill	Student	No.	Pass		No.	Pass		No.	Pass	
Categ	Status	Enr	n	%	Enr	n	%	Enr	n	%
Algebra	Rem Not Req	62	50	81	11	9	82	73	59	81
	Rem Complete	242	183	76	106	86	81	348	269	77

All data exclude Ws & are cumulative from Spring 1987 through Spring 1988.

These data represent an improvement over previous followups. In their first college-level mathematics courses, fall 1986 non-remedial entrants recorded a passing rate of 73% (including Ws), only three percentage points above the 70% passing rate of algebra-remediated students. The last section of this report places these numbers in the persective of the performance of previous cohorts.

It is difficult to conduct a valid followup of computation-remediated students because Mercer requires basic algebra proficiency for virtually all courses which involve quantitative skills. Only one course, Principles of Accounting (AC 103), holds any potential for such a study. Some students are permitted to enroll in the AC 103 course concurrent with enrollment in basic algebra. The data in Tables D-5 provide some estimation of the performance of computation completers. However, the numbers are small relative to the overall course enrollment and some of the students may have completed algebra before enrollment. Hence, the data must be viewed with extreme caution.

TABLE D-5a
PERFORMANCE IN PRINCIPLES OF ACCOUNTING I (AC 103)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

Skill Categ	Student Status	Full-Time No. Enr	Full-Time Pass n	Full-Time Pass %	Part-Time No. Enr	Part-Time Pass n	Part-Time Pass %	All (FT+PT) No. Enr	All (FT+PT) Pass n	All (FT+PT) Pass %
Comput	Rem Not Req	56	38	68	18	14	78	74	52	70
	Rem Complete	24	15	63	10	7	70	34	22	65

All data include Ws & are cumulative from Spring 1987 through Spring 1988.

TABLE D-5b
PERFORMANCE IN PRINCIPLES OF ACCOUNTING I (AC 103)
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

Skill Categ	Student Status	Full-Time No. Enr	Full-Time Pass n	Full-Time Pass %	Part-Time No. Enr	Part-Time Pass n	Part-Time Pass %	All (FT+PT) No. Enr	All (FT+PT) Pass n	All (FT+PT) Pass %
Comput	Rem Not Req	47	38	81	15	14	93	62	52	84
	Rem Complete	18	15	83	7	7	100	25	22	88

All data exclude Ws & are cumulative from Spring 1987 through Spring 1988.

Given the precaution about interpretation mentioned above, little can be said with certainty about the five point spread in the AC 103 passing rates of the two study groups from the fall 1986 cohort.

The college's cohort longitudinal data base tracks student performance in a variety of other entry level courses. The following seven courses were selected to evaluate the performance of reading-remediated students relative to those members of the cohort who entered with college-level reading skills.

SS 101 Contemporary Society I
PY 101 Introductory Psychology
SL 101 Introduction to Sociology
BY 103 Anatomy and Physiology I
ST 101 Speech Communication
BA 101 Business Organization and Management
SC 107 Man and His Environment

The data in Tables D-6 summarize findings. As before, withdrawal grades are included in the first table and excluded from the second.

TABLE D-6a
PERFORMANCE IN SELECTED OTHER COURSES
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

Skill Categ	Student Status	Full-Time No. Enr	Full-Time Pass n	Full-Time Pass %	Part-Time No. Enr	Part-Time Pass n	Part-Time Pass %	All (FT+PT) No. Enr	All (FT+PT) Pass n	All (FT+PT) Pass %
Reading	Rem Not Req	421	345	82	152	132	87	573	477	83
	Rem Complete	253	181	72	59	48	81	312	229	73

All include Ws & are cumulative from Spring 1987 through Spring 1988.

TABLE D-6b
PERFORMANCE IN SELECTED OTHER COURSES
FALL 1986 COHORT, CUMULATIVE, SPRING 1987 - SPRING 1988

Skill Categ	Student Status	Full-Time No. Enr	Full-Time Pass n	Full-Time Pass %	Part-Time No. Enr	Part-Time Pass n	Part-Time Pass %	All (FT+PT) No. Enr	All (FT+PT) Pass n	All (FT+PT) Pass %
Reading	Rem Not Req	403	345	86	143	132	92	546	477	87
	Rem Complete	234	181	77	54	48	89	288	229	80

All exclude Ws & are cumulative from Spring 1987 through Spring 1988.

The ten point spread in passing rates evident in Tables D is primarily a consequence of a large passing rate disparity in Psychology (PY 101). Only 66% of full-time reading-remediated students were able to pass PY 101. In all other courses used for this analysis, the passing rates of the two study groups were comparable. In light of this finding, the college will experiment in fall 1988 with a linkage between PY 101 and ES 210, the upper-level remedial reading course. One section of ES 210 will be designated for psychology students, and the instructor will integrate a large number readings from the field of psychology in conducting reading instruction. The consequences of this effort will not be known until summer 1989.

Pre- and Post-Testing

Students must demonstrate the specified exit proficiencies in order to earn a passing grade in a remedial course. The objectives and evaluation instruments for each course are described in the first section of this report. Table E summarizes the results of post-testing in final level courses.

TABLE E
PRE AND POST TEST RESULTS
FINAL LEVEL REMEDIAL COURSES

Skill Area	N	n	%	Test and Section/Form	Score to Pass	PRE-TEST Mean	PRE-TEST SD	POST-TEST Mean	POST-TEST SD	% Attain
Read ES210	515	515	100	College Reading Assessment Test (R.A.T.) Form B	40	34.20	5.71	45.50	5.18	100
Writ ES100	551	551	100	Sent Skills	N/A	38.32	6.83	47.84	5.36	
				Essay	N/A	4.99	1.96	7.29	1.41	
				Combined	80	68.25	14.88	91.56	10.55	100
Comput MS100	682	682	100	NJCBSPT-CO	165	154.65	6.63	170.15	7.64	100
Algeb MS110	561	561	100	NJCBSPT-EA	167	155.33	7.60	176.17	8.68	100

NOTE Results are for students who passed the indicated courses.
N = number of passing students who completed exit test
n = number of students scoring above minimum requirement
% = percent of students passing final level for whom post-test results are available
N/A = not applicable
Combined composition score = 6 x essay plus sentence skills

These data represent the testing results for virtually every student who passed computation (MS 100), algebra (MS 110), and the upper level courses in reading (ES 210) and writing (ES 100). The data are cohort-based in mathematics and represent student performance on the NJCBSPT computation/algebra subtests. Exit testing results in reading and writing are for 1987-1988 academic year. These records will not be applied to the cohort data base until a decision is reached regarding the college's application for approval of its locally-developed instruments and the associated equating schemes.

All students who passed these skills courses also passed the respective exit tests. In each instance, the mean pre/post gains recorded by these students are significant at the .001 confidence level. Although some of the gain can be attributable to the intrinsic weakness of the pre/post measurement technique, other data in this report argue that the improvement cannot entirely be an artifact of instrumentation. For example, the consistently strong performance of writing-remediated students who enroll in English Composition (see Tables D and Table M) certainly suggests that the instructional effort and rigorous exit testing requirement in the verbal skills area are making a significant difference for large numbers of underprepared students.

COMPARISON OF OUTCOMES FOR THE 1983, 1984, 1985 AND 1986 COHORTS

This section provides summary data on the two-year follow-up of the last four cohorts. The same indicators of student success are presented: remedial completion rates, retention, grade point averages, accumulation of college credits, successful survivor rates, and performance in college-level English and mathematics. This record over time, rather than the results of a single follow-up, yields the best evaluation of the college's remedial program. Such an approach smoothes aberrations, reveals patterns, and provides performance outcomes that cut across several cohorts.

Table F summarizes the testing, placement, and enrollments achieved by Mercer County Community College since fall 1983. Over this period, an average of 99% of the full-time cohort and 94% of the part-time cohort completed the NJCBSPT. For fall 1987 (not shown here), Mercer tested 99% of its full-timers and 93% of its part-timers, roughly matching this four-year average.

As noted earlier in this report, there has not been any discernible improvement in the academic proficiencies of entering students during the last few years. A trend toward declining computation proficiencies was evident for the period 1983-1986, but placement results for the fall 1987 cohort (not shown here) indicate that this trend has finally been arrested: the percentages of full- and part-time students needing computation returned to 1985 levels after a three year slide. The percentages of students needing algebra have remained relatively constant at approximately 64% for full-timers and 79% for part-timers.

TABLE F
TESTING, PLACEMENT, AND ENROLLMENT AFTER TWO YEARS
FALL 1983, FALL 1984, FALL 1985, FALL 1986 COHORTS

	Fall 1983				Fall 1984				Fall 1985				Fall 1986			
	FT		PT		FT		PT		FT		PT		FT		PT	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
TESTING	1579	99	605	94	1350	99	711	97	1254	98	660	90	1200	99	775	92
PLACEMENT																
Reading	688	43	236	39	607	45	316	44	581	46	298	45	518	43	324	42
Writing	684	43	246	41	507	38	275	39	554	44	275	42	543	45	346	45
Comput	656	42	286	47	620	46	368	52	585	47	373	57	606	51	450	58
Algebra	889	56	430	71	815	60	526	74	822	66	531	81	773	64	619	80
ENROLLMENT																
Reading	660	96	177	75	591	97	241	76	574	99	240	81	491	95	247	76
Writing	656	96	204	83	486	96	201	73	539	97	209	76	501	92	261	75
Comput	612	93	206	72	590	95	288	78	568	97	296	79	552	91	337	75
Algebra	643	72	234	54	635	78	299	57	590	72	276	52	592	77	356	58

With the exception of algebra, at least 90% of those full-time students needing remediation have been enrolled in the appropriate courses over the last four cohorts; roughly 75% of the full-time students needing developmental algebra enrolled as required. Across the two-year time period of these follow-ups, part-timers recorded lower enrollment rates in needed remediation. It should be noted that many of these students continued at the college on an irregular basis beyond the time frame of the follow-ups, so their eventual enrollment in remedial courses would not appear in the above totals.

Cumulative completion of remediation by the last four cohorts is summarized in Table G (full-time) and Table H (part-time). Of those full-timers who enrolled, the rate has averaged 80% in reading and writing and 71% in computation and algebra. No consistent patterns are evident, but the completion of reading by the fall 1986 cohort slipped significantly to 71% after a three year rate above 80%. Reading completions will be monitored carefully for the fall 1987 cohort to ascertain if this is a trend.

TABLE G
COMPLETION OF REMEDIATION AFTER TWO YEARS
FALL 1983, FALL 1984, FALL 1985, FALL 1986 COHORTS
FULL-TIME STUDENTS

Skill Area	Fall 1983 # Enr	Fall 1983 Completed #	Fall 1983 Completed %	Fall 1984 # Enr	Fall 1984 Completed #	Fall 1984 Completed %	Fall 1985 # Enr	Fall 1985 Completed #	Fall 1985 Completed %	Fall 1986 # Enr	Fall 1986 Completed #	Fall 1986 Completed %
READING	572	467	82	513	411	80	509	424	83	491	350	71
WRITING	630	524	83	455	356	78	501	417	83	501	382	76
COMPUTAT	612	442	72	590	425	72	568	374	66	552	409	74
ALGEBRA	643	471	73	635	427	67	590	427	72	592	431	73

Completed = passed highest level course after one or more attempts or completed requirements at another college.

Table H summarizes remedial completion rates by part-time members of each of the last three cohorts. Completion rates for part-timers also shows a decline in reading completions by the fall 1986 cohort, but the four year average remains above 80%. Completion of writing by part-timers averaged 77%, or slightly lower than the 80% rate of full-timers who enrolled in writing. In mathematics, part-timers outperformed full- timers. Over the four follow-up periods, they averaged 74% completion of computation and 78% completion of algebra.

TABLE H
COMPLETION OF REMEDIATION AFTER TWO YEARS
FALL 1983, FALL 1984, FALL 1985, FALL 1986 COHORTS
PART-TIME STUDENTS

Skill Area	Fall 1983 # Enr	Completed #	Completed %	Fall 1984 # Enr	Completed #	Completed %	Fall 1985 # Enr	Completed #	Completed %	Fall 1986 # Enr	Completed #	Completed %
READING	144	119	83	206	173	84	199	167	84	247	186	75
WRITING	197	149	76	186	155	83	190	141	74	261	194	74
COMPUTAT	206	143	69	288	243	84	296	204	69	337	254	75
ALGEBRA	234	186	79	299	226	76	276	220	80	356	276	77

Completed = passed highest level course after one or more attempts or completed requirements at another college.

Every two-year follow-up at Mercer has confirmed what other researchers report in the literature: remedial students are generally retained at levels equal to or better than the rates of college-level entrants. Table I summarizes the college's findings for full-time students from the last four cohorts.

TABLE I
RETENTION THROUGH SECOND SPRING
FALL 1983, FALL 1984, FALL 1985, FALL 1986 COHORTS
FULL-TIME STUDENTS

Student Status	Skill Area	Fall 1983 N	Ret	%	Fall 1984 N	Ret	%	Fall 1985 N	Ret	%	Fall 1986 N	Ret	%
Non Remedial	Read	895	477	53	741	395	53	673	368	55	699	357	51
	Writ	895	474	53	840	434	52	700	375	54	680	336	49
	Comp	923	505	57	727	386	53	669	365	55	609	309	51
	Alg	690	392	57	532	309	58	432	246	57	434	220	51
Remediated	Read	502	272	54	433	233	54	440	249	57	382	196	51
	Writ	540	281	52	368	194	53	427	241	56	404	211	52
	Comp	453	245	54	442	236	53	383	236	62	439	237	54
	Alg	491	303	62	451	270	60	440	289	66	452	274	61
Not Remediated	Read	182	18	10	173	14	8	141	9	6	160	16	10
	Writ	144	12	8	139	14	10	127	10	8	157	22	14
	Comp	203	17	8	178	20	11	202	25	12	193	23	12
	Alg	398	72	18	364	63	17	382	91	24	355	25	21

N = initial size of cohort Ret = returned FT or PT in second spring
Not Remediated: did not enroll/did not complete remediation

The non-remediated category includes students who did not enroll as well as those who did not pass the final level remedial course or are still working to meet requirements. With the exception of the algebra subgroup, the return rates for this category were dismal. Across the four cohorts, however, remediated students achieved return rates in the second spring which exceeded the rates tallied by those students who entered with college-level skills. And one subgroup, the algebra-remediated students outperformed every other group with a four year average return rate above 60%.

Table J summarizes grade point average (GPA) data for the four cohorts. Here, a consistent disparity between non-remedial and remediated students is evident.

TABLE J
CUMULATIVE GPA THROUGH SECOND SPRING
FALL 1983, FALL 1984, FALL 1985, FALL 1986 COHORTS
FULL-TIME STUDENTS

		Fall 1983			Fall 1984			Fall 1985			Fall 1986		
Student Status	Skill Area	N	Mean GPA	%≥2.0	N	Mean GPA	%≥2.0	N	Mean GPA	%≥2.0	N	Mean GPA	%≥2.0
Non Remedial	Read	477	2.46	75	395	2.39	72	368	2.45	75	357	2.52	75
	Writ	474	2.46	74	434	2.41	73	375	2.46	75	336	2.50	75
	Comp	505	2.39	71	386	2.41	72	365	2.42	74	309	2.45	75
	Alg	392	2.39	73	309	2.41	72	246	2.43	76	220	2.49	77
Remediated	Read	272	1.97	51	233	2.03	54	249	1.94	50	196	1.89	48
	Writ	281	1.95	52	194	1.91	46	242	1.93	50	211	1.99	51
	Comp	245	2.02	53	236	2.04	56	236	2.03	54	237	2.11	54
	Alg	303	2.26	63	270	2.19	61	289	2.21	63	274	2.20	62
Not Remediated	Read	18	0.88	17	14	1.51	21	9	1.16	33	16	0.82	13
	Writ	12	1.04	25	14	1.66	36	10	0.86	20	22	0.96	23
	Comp	17	1.53	35	20	1.39	10	25	1.38	28	23	1.12	26
	Alg	72	1.41	28	63	1.66	37	91	1.73	38	75	1.73	36

NOTES: N = number of students in the category who enrolled in second spring full-time or part-time. All GPA data are for college level courses, cumulative from first fall through second spring.

For each two-year followup, college-level entrants earned cumulative GPAs that were significantly higher than the average GPAs of those who completed remediation. The average record across the four cohorts indicates the largest disparity in the verbal skills area, a smaller gap in computation, and the smallest margin for the algebra subgroup. Approximately three-quarters of the college-level entrants were at or above the 2.0 GPA threshold after four semesters, while slightly more than half of the remediated students on average attained this standard. In contrast, even the relatively few students in the non-remediated group who were retained for the two-year period were in serious

academic trouble: their cumulative mean GPAs were far lower and roughly three-quarters of them were below the 2.0 GPA level.

A full-time student with academic deficiencies typically has remedial requirements in several areas and must enroll in a first semester program largely consisting of courses which do not carry college degree credit. Hence, even those who are able to meet exit requirements in their first semester begin their second term with a credit deficit. Table K compares the credits accumulated by remediated students over four semesters with the college credits earned by non-remedial students and those who were not remediated.

TABLE K
MEAN COLLEGE CREDITS
FALL 1983, FALL 1984, FALL 1985, FALL 1986 COHORTS
FULL-TIME STUDENTS

Student	Skill	Fall 1983			Fall 1984			Fall 1985			Fall 1986		
Status	Area	Att	Earn	Ratio	Att	Earn	Ratio	Att	Earn	Ratio	Att	Earn	Ratio
Non	Read	46	42	.91	44	39	.90	44	41	.92	45	41	.92
Remedial	Writ	45	41	.91	44	39	.90	44	41	.92	45	41	.92
	Comp	45	41	.91	44	40	.91	44	41	.92	44	40	.91
	Alg	46	42	.91	45	40	.90	45	41	.92	46	43	.92
Remedi-	Read	34	31	.89	33	30	.90	33	30	.89	31	28	.91
ated	Writ	35	31	.89	31	28	.89	32	29	.89	32	30	.91
	Comp	34	30	.89	34	30	.89	33	30	.91	34	31	.92
	Alg	38	35	.91	36	33	.90	37	34	.92	37	34	.92
Not	Read	14	10	.71	21	18	.86	5	4	.79	10	6	.59
Remedi-	Writ	12	11	.94	24	20	.86	7	4	.65	13	11	.79
ated	Comp	21	17	.80	22	16	.77	20	15	.73	19	13	.65
	Alg	25	19	.75	26	22	.83	30	26	.85	25	23	.85

NOTE: Data are cumulative for college courses first fall through second spring by members of each category enrolled in second spring.

For each of the last three cohorts, the remediated group has accumulated, on average, 31-37 college credits. The cumulative totals for college-level entrants have concentrated in the range of 39-45 mean college credits, or roughly eight credits more than the record of the remediated group.

Apparently, the credit deficit for the remedial population continues to be constant across two years. This has been verified in separate studies conducted by the college. When first semester college credits are ignored in the comparison, the two groups (remediated and non-remedial) accumulate almost identical mean credit totals through the balance of the two year time period. This is consistent with the credit ratio data in Table K: both groups from every cohort attained ratios of credits earned to credits attempted that were at or near the 90% level. Other information (including the GPA data discussed previously) does show, however, that remediated students generally earn lower grades than their non-remedial classmates.

The non-remediated group includes students who did not enroll in a required remedial course or who did not satisfy the exit requirements in the skill area. As discussed earlier, the retention of these students through the second spring is consistently low (generally below 10%). Hence, the credit data in Table K reflect the accomplishments of a relatively tiny population from each cohort. This, in part, explains the cohort-to-cohort fluctuations in credit earnings and credit ratios for the non-remediated group. Overall, the credit data for the non-remediated group consistently show the poor progress of this group in completing college-level work.

Table L displays "successful survivor rates" (SSR) for each of the subgroups across the four cohorts. This index provides an overall measure of retention and cumulative academic success of students after two years. (The SSR index reports the percentage of the original cohort who both returned in the second spring and earned a cumulative grade point average at or above the 2.0 threshold.)

TABLE L
SUCCESSFUL SURVIVOR RATES
FALL 1983, FALL 1984, FALL 1985, FALL 1986 COHORTS
FULL-TIME STUDENTS

		Fall 1983			Fall 1984			Fall 1985			Fall 1986		
Student Status	Skill Area	N	% Ret	% SSR	N	% Ret	% SSR	N	% Ret	% SSR	N	% Ret	% SSR
Non Remedial	Read	895	53	40	741	53	38	673	55	41	699	51	38
	Writ	895	54	39	840	52	38	700	54	40	680	49	37
	Comp	923	55	39	727	53	38	669	55	40	609	51	38
	Alg	690	57	42	532	58	42	432	57	44	434	51	39
Remediated	Read	502	54	28	433	54	29	440	57	28	382	51	25
	Writ	540	52	27	368	53	24	427	56	28	404	52	27
	Comp	453	54	29	442	53	30	383	62	33	439	54	29
	Alg	491	62	39	451	60	36	440	66	41	452	61	37
Not Remediated	Read	182	10	2	173	8	2	141	6	2	160	10	1
	Writ	144	8	2	139	10	4	127	8	3	157	14	3
	Comp	203	8	3	178	11	1	202	12	3	193	12	3
	Alg	398	18	5	364	17	6	382	24	9	355	21	9

NOTE: N = original cohort size %Ret = % returning second spring
% SSR = percent of original cohort returning second spring with a two- year cumulative GPA at or above 2.0

Despite their strong retention rates, the lower GPAs of the remediated groups keep their SSR below the levels attained by the various non-remedial groups. For the reading, writing, and computation subgroups, a margin of roughly ten percentage points separates remediated students from their college-level classmates.

In the case of algebra, however, the margin has remained consistently smaller. For the last four cohorts, the algebra-remediated subgroup attained an

SSR averaging only three percentage points below the SSR of students who did not need algebra remediation. The consistently high successful survivor rates of algebra-remediated students suggests a relationship between the study of basic algebra and a student's overall college success. The data at hand, however, are not sufficient to warrant an assertion of causality.

As expected, the non-remediated groups have tallied the lowest successful survivor rates across all four two-year follow-ups. For example, the SSR of students who did not complete needed remediation in reading, writing, or computation, ranged from 1.1% to 3.4% across the three cohorts. Students unremediated in algebra were only slightly higher, with SSR values in the range 5-9% across the four cohorts.

The last comparison in this section (see Table M) examines the passing rates in college level English and mathematics by non-remedial and remediated members of the last four cohorts. Withdrawal grades are included in these two-year cohort comparisons.

TABLE M
CUMULATIVE PASSING RATES AFTER TWO YEARS
COLLEGE-LEVEL ENGLISH AND MATHEMATICS
FALL 1983, FALL 1984, FALL 1985, FALL 1986 COHORTS

Skill Area	Student Status	Coll Course	Fall 1983%			Fall 1984%			Fall 1985%			Fall 1986%		
			FT	PT	Tot	FT	PT	Tot	FT	PT	Tot	FT	PT	Tot
Writ	Non Remedial	EG101	88	79	84	86	89	87	77	86	81	84	93	88
	Remediated	EG101	77	74	76	81	64	77	77	79	77	78	81	79
Alge	Non Remedial	MA101	86	75	85	77	85	78	81	63	76	70	71	70
	Remediated	MA101	63	70	65	61	78	65	66	75	68	68	72	69
Alge	Non Remedial	MA107/8	71	80	73	93	67	88	83	50	80	75	100	79
	Remediated	MA107/8	90	83	89	78	100	81	73	79	75	70	100	75
Alge	Non Remedial	All MA	82	77	82	80	81	80	82	62	77	71	82	73
	Remediated	All MA	67	71	68	63	79	67	67	73	69	71	74	70

NOTES: All data for cohort are cumulative passing rates (%) in first college English/Math course from Spring 1 to Spring 2. All rates include withdrawals Total passing rates are weighted for enrollment.
(CAUTION - N's are small for MA107/108 in some years.

The passing rate in college English by writing-remediated students has been impressive. In the aggregate, the four cohort subgroups attained an average passing rate above 77%, which compares favorably to the 85% four-year average by students who entered college-level English directly. The first section of this report discusses the remarkable improvement in college-level English passing rates that accompanied the implementation of the placement and remediation program at the beginning of this decade (see Figure 2). Data here illustrate more specifically how remediated students have performed during the last several

years. Close examination of the raw data, however, do reveal that remediated students generally earn lower grades in the course than do their non-remedial classmates.

Passing rates overall are consistently lower in mathematics. There is some encouragement that the margin separating remediated students from non-remedial entrants has been narrowing in the case of Intermediate Algebra (MA 101). For the 1983 cohort, 20 percentage points separated the two groups; the margin dipped to 13 points for the 1984 cohort and eight points for the 1985 cohort; and the two-year follow-up of the 1986 cohort shows only a one point margin. These are important gains in light of the crucial role of MA 101 in the pre-calculus sequence.

Enrollment is generally small in the two liberal arts mathematics courses (MA 107 and MA 108). However, algebra-remediated students have performed well in these two offerings. For one cohort (1983), remediated students actually outperformed those who did not need algebra remediation. Although the sample size was precariously small in this instance, this outcome is still cause for cautious optimism.

The aggregate of all data for full-time and part-time students who enrolled in entry-level college mathematics (MA 101, MA 107, or MA 108) shows a passing rate by algebra-remediated students of 69% across the four cohorts. Recent initiatives targeting this area for improvement will be continued in 1988-89.

SUMMARY

It is impossible to reduce this vast quantity of data into one or a few simple measures of remedial of program effectiveness; such simplification would obscure important interrelationships among variables. However, some generalizations and a few important trends can be cited in light of the findings from the fall 1986 followup and those from preceding cohort studies.

Among full-time entrants over the last four cohorts, the cumulative yield of remediation completers (see Table G) *averaged* 79% in reading, 80% in writing, 71% in computation, and 71% in algebra. The 71% completion rate in reading for the fall 1986 cohort was significantly *below* the rate for the preceding cohorts, but the completion rate in computation for the most recent (Fall 1986) cohort *improved* to 74% after an anomalous dip to 66% for the Fall 1985 cohort.

Retention of students is fundamental to the success of an academic institution. The remedial enterprise, in particular, cannot be judged effective if its students do not persist.

The average return rates of remediated and college-level entrants across the four cohorts are displayed graphically in figure 3. In every case, *remediated students achieved return rates in the second spring which exceeded the rates tallied by those students who entered with college* level skills. One subgroup, algebra-remediated students, achieved an average fourth semester return rate above 60% across the four cohort followups; they outperformed every other subgroup.

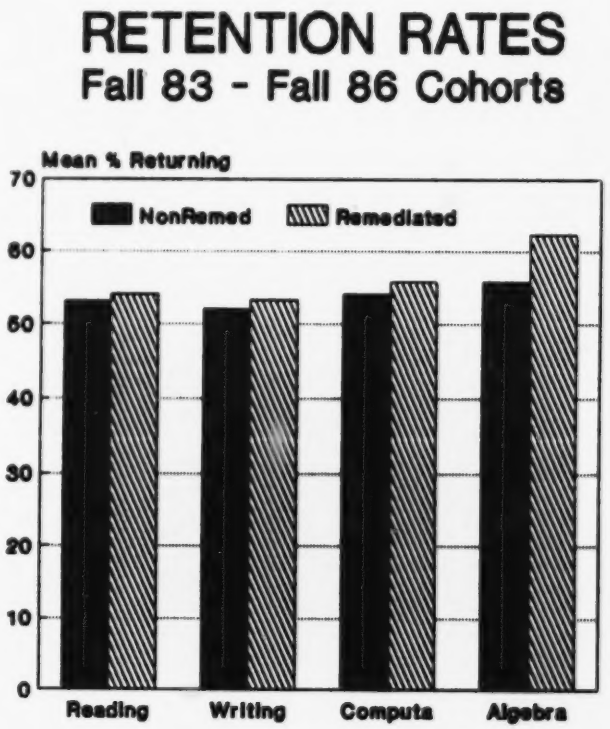

Figure 3: Average Retention Rates

The consistently high retention rate of remediated students is encouraging. Nevertheless, the college must also be concerned with the academic progress of remedial completers. The followup studies described in this report compare the academic performance of remediated and college-level entrants in terms of their: accumulation of college credits, grade point averages, and credit ratios.

Remedial courses do not carry college degree credit. Hence, full-time students who must enroll in a remedial program suffer *a credit deficit relative to their non-remedial counterparts.* As shown in Figure 6, the margin over two years *averages approximately 11 credits* in reading, writing, and computation. The disparity is smaller for those students needing and completing algebra. For all groups, *the difference remains relatively constant after the first semester.* Many skills-deficient students require developmental work in reading, writing, and computation, which explains the similarity in the findings for these three areas. A separate and smaller group only requires algebra remediation, so their credit deficit is smaller.

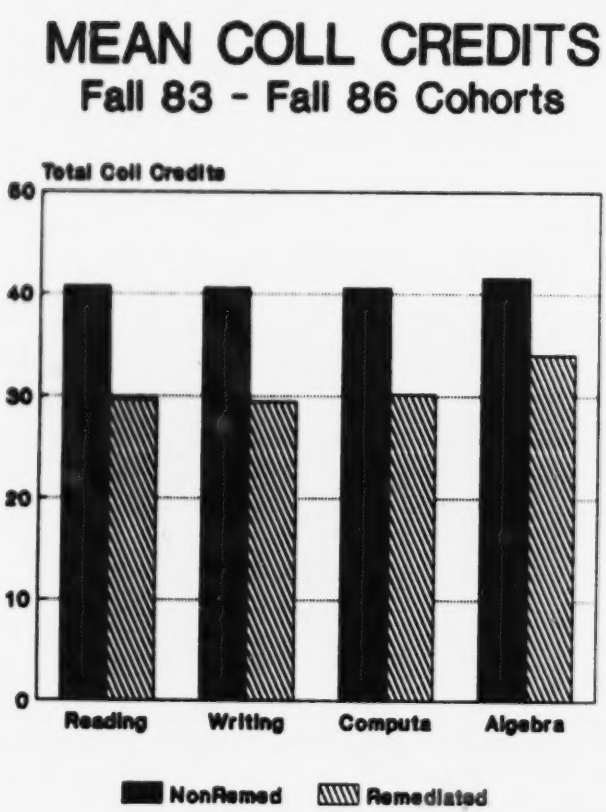

Figure 6 Mean College Credits

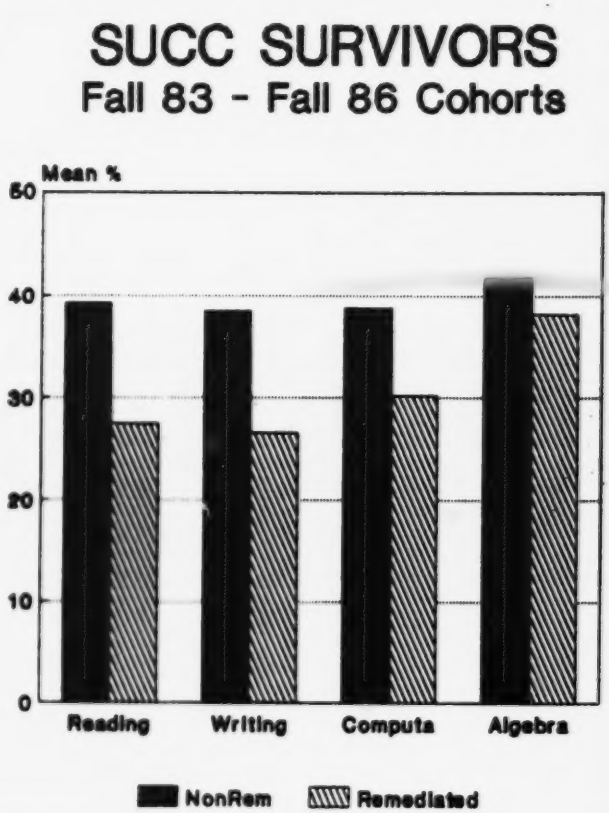

Figure 7 Successful Survivor Rates

The successful survivor rate (SSR) combines persistence and grade point average results into a single indicator. The SSR shows the percentage of students from the original cohort who returned and achieved a GPA at or above the 2.0 level. Figure 7 summarizes findings across the last four cohorts for the same two study groups separated by skill area. Despite their high retention rates, the lower GPAs of reading, writing, and computation completers *keeps their SSR far below the SSR of students who entered with college-level skills.* However, *the SSR margin between algebra-remediated students and those who were proficient in algebra at the time of admission is relatively small* across the four two-year followups.

Retention, credit accumulation, and grade point average data provide good indicators of program effectiveness. However, the basic skills program concentrates on preparing students for their first college courses with the expectation that students will continue to develop their proficiencies. The performance by writing-remediated students in English Composition I (EG 101) and by algebra-remediated students in entry level mathematics courses offers an excellent window into program success. The average cumulative two-year passing rates for the last four cohorts in English and mathematics are displayed in Figures 8 and 9.

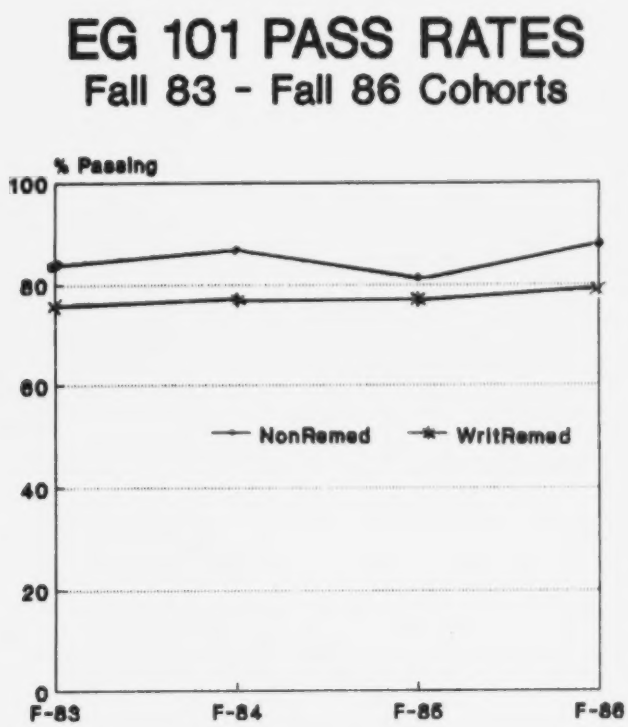

Figure 8 English Passing Rates

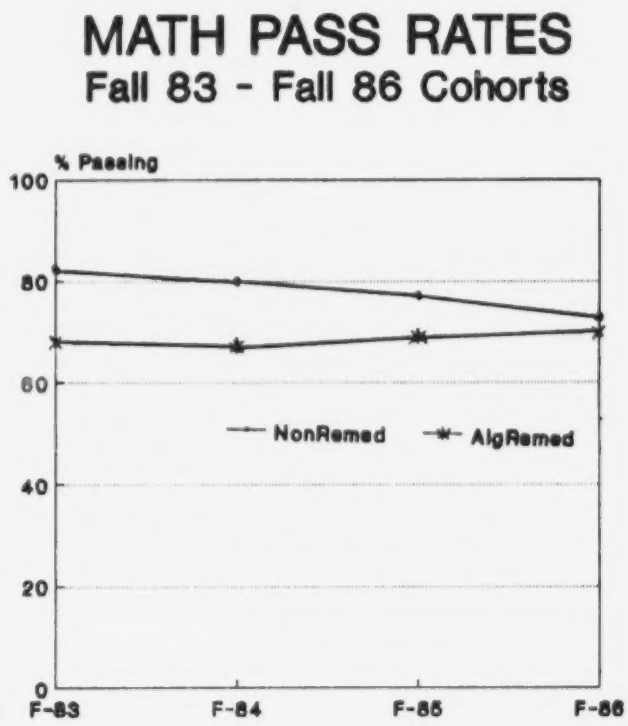

Figure 9 Math Passing Rates

These are cohort-based data (versus college-wide passing rates which are somewhat lower) aggregated across two years for all full and part-time students who entered in the corresponding fall semester. In all cases, withdrawal and incomplete grades are included in this comparison of passing rates.

Student success in English has been high and relatively stable, with *writing-remediated students on average passing EG 101 at a rate only slightly below those who entered the course without remedial intervention.* However, the situation in mathematics, which includes all first semester college-level mathematics courses, shows significant trends. As shown in Figure 10, *the performance in math by algebra-remediated students has been improving with each cohort while the passing rates of non-remedial entrants has been declining.* The consequent *closing of the gap* between the two groups offers encouragement that recent efforts to improve

student success in mathematics are finally yielding results. Nevertheless, the *overall (college-wide) passing rate in mathematics has not reached the desired level.*

Finally, the performance by *reading-remediated* students from the fall 1986 cohort, aggregated across seven courses for full- and part-time students, also was studied. This analysis *for a single cohort* showed passing rates (including withdrawal grades) of 87% for non-remedial students and 80% for completers of the remedial program. The course-by-course results, however, indicate that *most of the disparity can be attributed to one course, Introduction to Psychology.* In this high enrollment course, only 66% of the full-time reading-remediated students were able to pass.

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